Hitachi Maxell, Ltd., v. ZTE Corp., et al.

Case No. 5:16-cv-00179-RWS

Defendants' Markman Presentation

November 29, 2017

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U.S. Patent No. 6,329,794 ("the '794 Patent")

(10) **Patent No.: US 6,329,794 B1**

(54) **INFORMATION PROCESSING DEVICE AND METHOD FOR CONTROLLING POWER CONSUMPTION THEREOF**

(22) **Filed: Sep. 7, 2000**

(12) **United States Patent**
Oeda et al.

(10) **Patent No.: US 6,329,794 B1**
(45) **Date of Patent: Dec. 11, 2001**

(54) **INFORMATION PROCESSING DEVICE AND METHOD FOR CONTROLLING POWER CONSUMPTION THEREOF**

(75) Inventors: **Shigeto Oeda**, Fujisawa; **Naoki Mori**; **Hiromichi Ito**, both of Yokohama, all of (JP)

(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/657,151**

(22) Filed: **Sep. 7, 2000**

(30) **Foreign Application Priority Data**

May 22, 2000 (JP) 12-154358

(51) **Int. Cl.**[7] **H02J 7/00**

(52) **U.S. Cl.** **320/132**; 320/130

(58) **Field of Search** 320/132, 134, 320/139, 130; 324/426, 428

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,969,529 * 10/1999 Eiraku et al. 324/433
6,049,210 * 4/2000 Hwang 320/134
6,100,666 * 8/2000 Ryu 320/132

OTHER PUBLICATIONS

Research File No. 5, ACPI, POS/V Magazine (1999), 7.15, p. 210.

* cited by examiner

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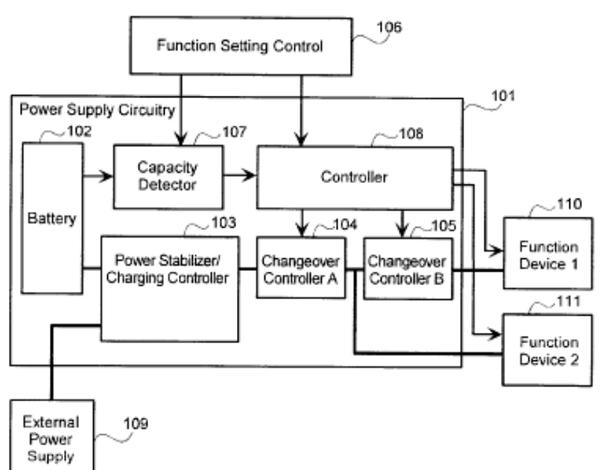
(57) **ABSTRACT**

A power supply section includes a capacity detector capable of detecting the remaining capacity in a battery and a controller issuing power consumption reduction instructions to independently operable function devices based on usage priorities thereof. This allows power consumption operations to be performed such as stopping function devices with low priorities first based on the remaining battery capacity. As a result, power to function devices with higher priorities can be maintained. Based on the remaining battery capacity, the controller controls the operations of the function devices and uses a display to show information allowing the operator to identify operable and inoperable function devices as the battery capacity drops.

14 Claims, 10 Drawing Sheets



“function device”/“component device”

Claim	Disputed Term	Defendant’s Proposed Construction	Plaintiff’s Proposed Construction
1, 9	“function device(s)” / “component device” / “component devices for performing different functions in the device”	Indefinite This is a means-plus-function element to be construed in accordance with 35 35 U.S.C. § 112, ¶ 6. **Function**: “modem functions” (1:20); “audio communication function (function device A) and a videophone function (function device B)” (1:31-32); no function otherwise disclosed **Structure**: insufficient corresponding structure disclosed	Not indefinite, Not governed by 35 U.S.C. § 112, ¶ 6. “hardware, software, or a combination of the two that consumes power and implements one or more functions of the information processing device”

Dispute: Is this a means-plus-function element?

Indefiniteness of 35 U.S.C. § 112, ¶ 6 Claims

- Under 35 U.S.C. § 112, ¶ 6, a patentee may claim a means for performing a specified function without reciting in the claim itself any structure for performing the function.

Patentee must limit its claims to the structure disclosed in the specification that is "clearly link[ed]" to and necessary for performing the function.

Noah Sys., Inc. v. Intuit Inc., 675 F.3d 1302, 1311 (Fed. Cir. 2012).

Similarly, a patentee may claim generic means elements in purely functional terms only if the specification clearly discloses a corresponding structure for that function.

Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1219 (Fed. Cir. 2003).

If a patent claim fails to meet these requirements, it is indefinite.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1352 (Fed. Cir. 2015) (*en banc).*

Non-Means Language May Invoke 35 U.S.C. § 112, ¶ 6

Although the statute refers to the words "means for," those words are not required for a term to be subject to § 112, ¶ 6. The absence of these words in the claims of a patent creates a rebuttable presumption that § 112, ¶ 6 does not apply.

This presumption can be overcome if "the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function."

Contrary to Maxell's assertion, the proper question is "whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure" to perform the recited function.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1348 (Fed. Cir. 2015).

These are means-plus-function elements

The Federal Circuit sitting *en banc* held that a claim term using the word "module" without the word "means" invokes § 112, ¶ 6.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1351 (Fed. Cir. 2015) (*en banc)*

The Federal Circuit explained that term "device" is a non-structural, nonce word that is tantamount to using the word 'means' because it typically does not connote sufficiently definite structure.

Id. at 1350; *Robert Bosch, LLC v. Snap-On Inc., 769 F.3d 1094, 1099 (Fed. Cir. 2014) (citing Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1354 (Fed.Cir.2006)*

These are means-plus-function elements

- The ’794 patent’s recitation of the word “device” is tantamount to using the word “means” because the claim language does not provide any indication of structure whatsoever.

- The language is purely functional. Neither the modifiers “function” and “component,” nor the language that follows the terms —“equipped with independent functions” and “for performing different functions”—adds anything in the way of a structural element to the terms.

- That this language fails to identify any specific function, instead reciting that the device should perform unspecified different functions in the device, does not render the language non-functional.

"Function device" and "component device" have no recognizable meaning or structural significance

- "Function device" and "component device" have no recognizable meaning to a person of ordinary skill in the art, and instead generically describing literally any device that is capable of performing any function. Wolfe Decl. ¶¶ 41-42

- The terms have no structural significance and have no more meaning than if the patentee had used the word "thing." Wolfe Decl. ¶ 42

- The specification fails to provide a description of the terms at all, let alone a level of description that could impart any structural significance. Wolfe Decl. ¶ 43

- Maxell's incredibly broad proposed construction establishes the purely functional nature of these terms and highlights the lack of any structural limitation and could be **any** hardware, software or combination thereof.

The claim language and the specification fail to recite sufficiently definite structure

1. An information processing device comprising:
at least two function devices equipped with independent functions; and

9. An information processing device comprising:
component devices for performing different functions in the device, each of said component devices having a corresponding power supply;

’794 Patent at cls. 1, 9.

- There is no detail regarding the operation of the “function device” or “component device” in the claims or the specification.
- Maxell does not even attempt to identify any disclosed structure that would perform the claimed functions.
- Maxell admits that the only structure disclosed is a CPU and memory that the specification discloses as part of a “common function device.”

A CPU and memory are not sufficiently definite structure under 35 U.S.C. § 112, ¶ 6

"In cases involving a computer-implemented invention in which the inventor has invoked means-plus-function claiming, this court has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor."

Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008)

The requirement to disclose an algorithm for computer-implemented functions is only excused when the patentee has recited functions that "can be achieved by any general purpose computer without special programming."

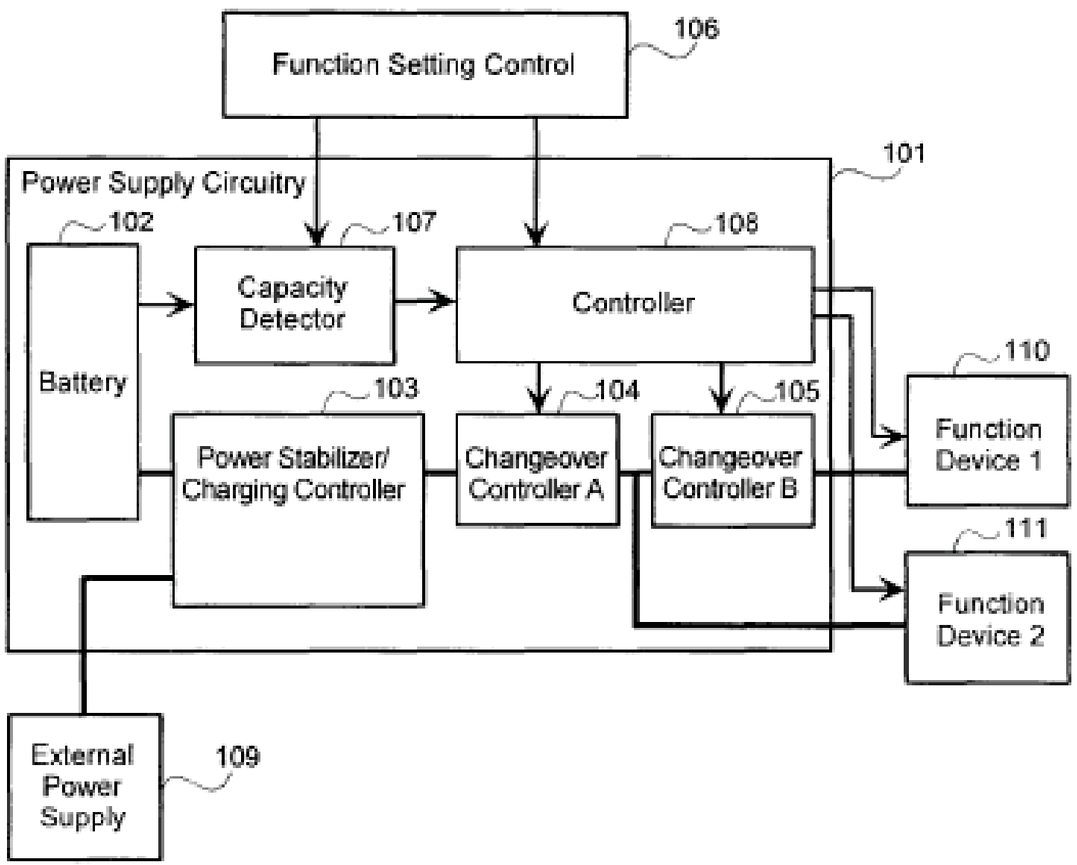
In re Katz Interactive Call Processing Patent Litig., 639 F.3d 1303, 1316 (Fed. Cir. 2011)

"[I]n a means-plus-function claim 'in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.'"

Aristocrat Techs., 521 F.3d at 1333 (Fed. Cir. 2008)

The specification describes the devices in purely functional language

FIG.1



- The specification describes the devices in circular terms: “The devices specific to the functions 1, 2 are provided through the function devices 1, 2….” ’794 Patent at 6:15-18.

- At most, the specification describes that the devices receive power, perform functions in an information processing device, and that they can perform single or multiple functions

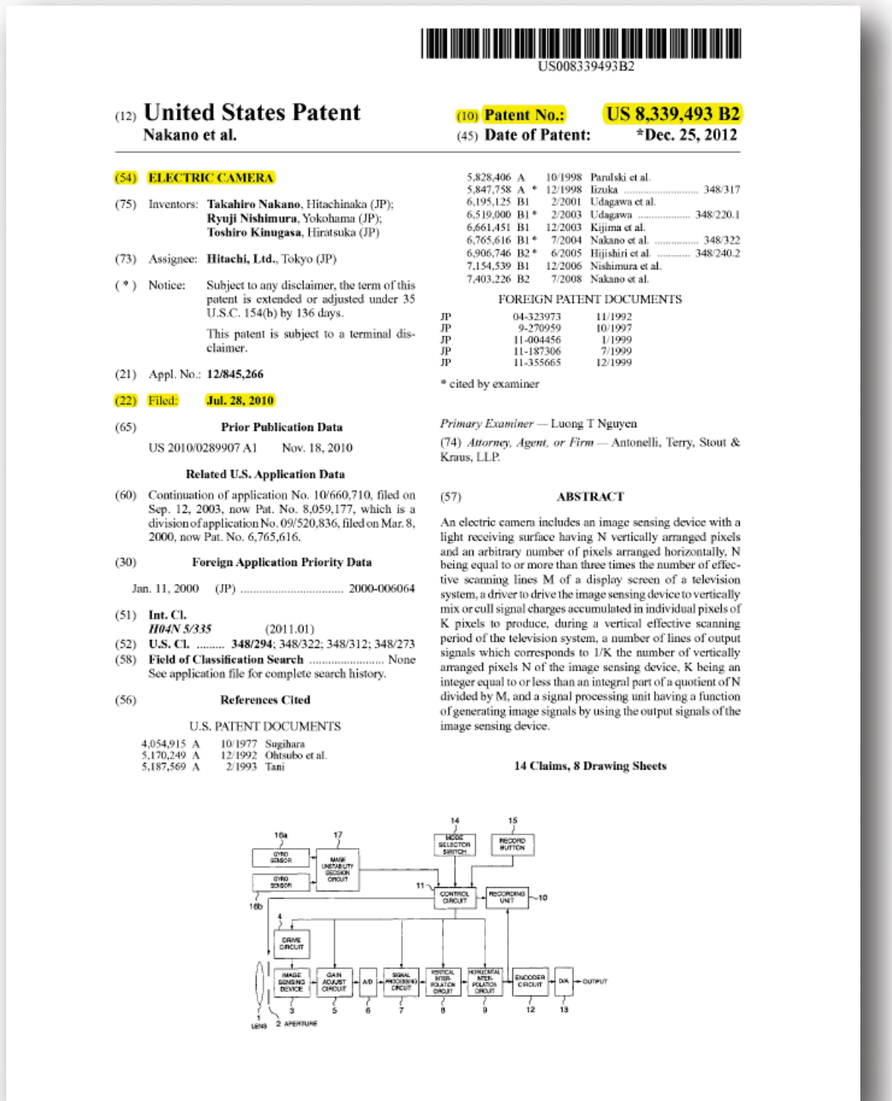
- The specification describes the “function devices” only in terms of functionality, and does not provide any disclosure that one of ordinary skill in the art would recognize as a structure for performing the claimed functions. Wolfe Decl. at ¶46

U.S. Patent No. 8,339,493 ("the '493 Patent")

(10) **Patent No.: US 8,339,493 B2**

(54) **ELECTRIC CAMERA**

(22) Filed: **Jul. 28, 2010**



US008339493B2

(12) **United States Patent**
Nakano et al.

(10) **Patent No.: US 8,339,493 B2**
(45) **Date of Patent: *Dec. 25, 2012**

(54) **ELECTRIC CAMERA**

(75) Inventors: **Takahiro Nakano**, Hitachinaka (JP); **Ryuji Nishimura**, Yokohama (JP); **Toshiro Kinugasa**, Hiratsuka (JP)

(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 136 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/845,266**

(22) Filed: **Jul. 28, 2010**

(65) **Prior Publication Data**

US 2010/0289907 A1 Nov. 18, 2010

Related U.S. Application Data

(60) Continuation of application No. 10/660,710, filed on Sep. 12, 2003, now Pat. No. 8,059,177, which is a division of application No. 09/520,836, filed on Mar. 8, 2000, now Pat. No. 6,765,616.

(30) **Foreign Application Priority Data**

Jan. 11, 2000 (JP) 2000-006064

(51) **Int. Cl.**
H04N 5/335 (2011.01)

(52) **U.S. Cl.** **348/294**; 348/322; 348/312; 348/273

(58) **Field of Classification Search** ..... None
See application file for complete search history.

(56) **References Cited**

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5,170,249	A	12/1992	Ohtsubo et al.	
5,187,569	A	2/1993	Tani	
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6,195,125	B1	2/2001	Udagawa et al.	
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6,765,616	B1 *	7/2004	Nakano et al.	348/322
6,906,746	B2 *	6/2005	Hijishiri et al.	348/240.2
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JP	04-323973	11/1992
JP	9-270959	10/1997
JP	11-004456	1/1999
JP	11-187306	7/1999
JP	11-355665	12/1999

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Primary Examiner — Luong T Nguyen

(74) *Attorney, Agent, or Firm* — Antonelli, Terry, Stout & Kraus, LLP

(57) **ABSTRACT**

An electric camera includes an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system, a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to 1/K the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M, and a signal processing unit having a function of generating image signals by using the output signals of the image sensing device.

14 Claims, 8 Drawing Sheets

U.S. Patent No. 8,339,493 ("the '493 Patent")

- While there are no terms disputed in the '493 patent, it shares a common specification with the '729 patent.

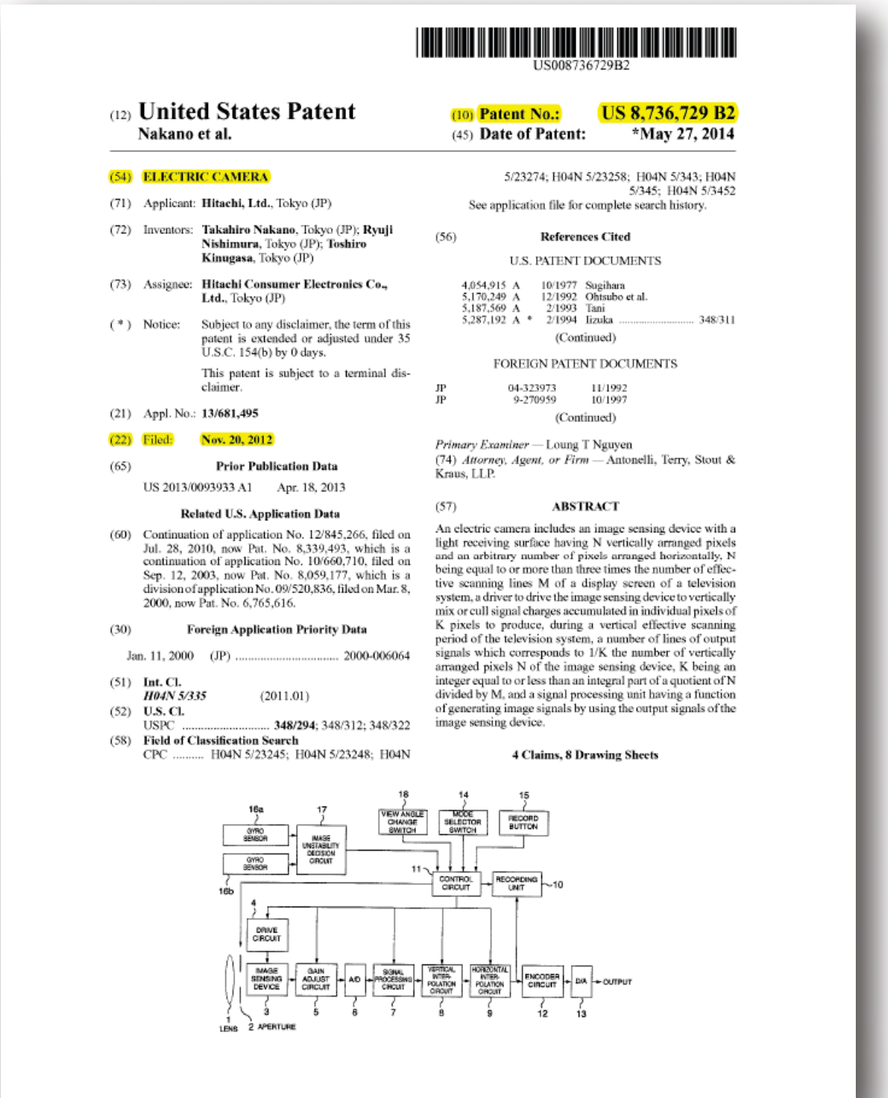
Pl.'s Opening Br. at 43 n. 9.

U.S. Patent No. 8,736,729 ("the '729 Patent")

(10) **Patent No.: US 8,736,729 B2**

(54) **ELECTRIC CAMERA**

(22) Filed: **Nov. 20, 2012**



US008736729B2

(12) **United States Patent**
Nakano et al.

(10) **Patent No.: US 8,736,729 B2**
(45) **Date of Patent: *May 27, 2014**

(54) **ELECTRIC CAMERA**

(71) Applicant: **Hitachi, Ltd.**, Tokyo (JP)

(72) Inventors: **Takahiro Nakano**, Tokyo (JP); **Ryuji Nishimura**, Tokyo (JP); **Toshiro Kinugasa**, Tokyo (JP)

(73) Assignee: **Hitachi Consumer Electronics Co., Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/681,495**

(22) Filed: **Nov. 20, 2012**

(65) **Prior Publication Data**

US 2013/0093933 A1 Apr. 18, 2013

Related U.S. Application Data

(60) Continuation of application No. 12/845,266, filed on Jul. 28, 2010, now Pat. No. 8,339,493, which is a continuation of application No. 10/660,710, filed on Sep. 12, 2003, now Pat. No. 8,059,177, which is a division of application No. 09/520,836, filed on Mar. 8, 2000, now Pat. No. 6,765,616.

(30) **Foreign Application Priority Data**

Jan. 11, 2000 (JP) 2000-006064

(51) **Int. Cl.**
H04N 5/335 (2011.01)

(52) **U.S. Cl.**
USPC **348/294**; 348/312; 348/322

(58) **Field of Classification Search**
CPC H04N 5/23245; H04N 5/23248; H04N 5/23274; H04N 5/23258; H04N 5/343; H04N 5/345; H04N 5/3452
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,054,915	A	10/1977	Sugihara	
5,170,249	A	12/1992	Ohtsubo et al.	
5,187,569	A	2/1993	Tani	
5,287,192	A *	2/1994	Iizuka	348/311

(Continued)

FOREIGN PATENT DOCUMENTS

JP	04-323973	11/1992
JP	9-270959	10/1997

(Continued)

Primary Examiner — Loung T Nguyen
(74) *Attorney, Agent, or Firm* — Antonelli, Terry, Stout & Kraus, LLP.

(57) **ABSTRACT**

An electric camera includes an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system, a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to 1/K the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M, and a signal processing unit having a function of generating image signals by using the output signals of the image sensing device.

4 Claims, 8 Drawing Sheets

"an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern"

Claim	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern"	This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: "for image sensing" **Structure**: a solid state image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern and having an equal number of color sensitive filter elements arranged such that each color forms a vertical line.	Plain and ordinary meaning

Dispute: Is this a means-plus-function element?

This Is a Means-Plus-Function Claim Element

- Claim 1 contains “an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern.”

- This term should be construed according to 35 U.S.C. § 112, ¶ 6 because the claim doesn’t contain sufficient structure to do the function of image sensing.

Although this limitation does not include the word “means,” the limitation does not recite sufficiently definite structure for performing the claimed function, and thus should be construed as a means-plus-function limitation.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015)

By way of contrast, claim 1 of the ’493 patent includes the requisite structure for image sensing, the ’729 patent does

The ‘493 Patent	The ‘729 Patent
The invention claimed is: 1. An electric camera comprising: an image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern,	The invention claimed is: 1. A camera comprising: an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern;

Plaintiff's reliance on *Free Stream Media Corp* is unavailing

- In contrast to the device construed in *Free Stream Media Corp* , the image sensing structure needed to perform the function of image sensing is not present in the claim.

- The term should not be governed by the plain and ordinary meaning because the specification fails to offer what that meaning might be
  - a pixel is a data construct in an image (with data representing color intensities from multiple image filter-sensor elements), not an element on a sensor as plaintiffs appear to assert.

    Declaration of Mansoorian at ¶ 37.

"A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute."

O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008)

The Appropriate Structure to perform the function of image sensing includes color filters arranged in vertical lines

cally in a grid pattern. On these grid-arrayed pixels three types of color filters that pass yellow (Ye), green (G) and cyan (Cy), respectively, are arranged in such a way that the combination of these three colors is repeated horizontally every three pixels and that the filters of the same colors are lined vertically in so-called vertical stripes. Although an arbitrary number of

'729 Patent at 4:41 – 4:46 (emphasis added)

- The appropriate structure for image sensing must include the color sensitive filters.
- Plaintiff asserts "ZTE's primary support from the specification does not include any reference to "color sensitive filter elements arranged such that each color forms a vertical line"
  - This is at best a significant overstatement

The Appropriate Structure to perform the function of image sensing includes color filters arranged in vertical lines

- Additional support found in “fourth embodiment”

FIG.13A

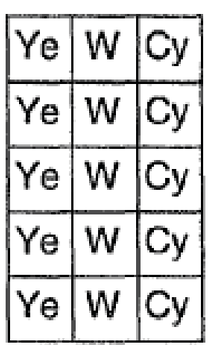
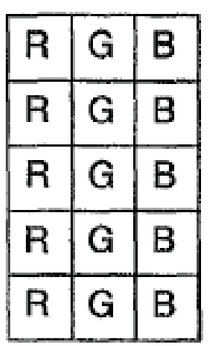


FIG.13B



FIGS. **13**A and **13**B show arrangements of color filters in this embodiment. These color filters in both examples are arranged in vertical stripes and, regardless of the number of pixels to be vertically mixed or culled, the R, G, B primary color signals can be generated from one line of output signals. FIG. **13**A shows a color filter

‘729 Patent at 15:25 – 15:30 (emphasis added)

"an image instability detector"

Claim	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"an image instability detector"	Indefinite This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: "detecting an image-instability of the electric camera" **Structure**: insufficient corresponding structure disclosed	"a device, such as a gyroscopic sensor or the like, capable of detecting an image instability of the electric camera"

Dispute: Is this a means-plus-function element?

This Is a Means-Plus-Function Claim Element

- Claim 1 contains “an image instability detector without disclosure of specific structure that would perform the function of detection of image instability.”

Although this limitation does not include the word “means,” the limitation does not recite sufficiently definite structure for performing the claimed function, and thus should be construed as a means-plus-function limitation.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015)

This Is a Means-Plus-Function Claim Element

- The specification of both the ‘493 and ‘729 patents disclose:
  - gyro sensors to determine an image-unstability detector.
  - an image-unstability circuit to determine image-instability.

16*a*

and 16*b* gyro sensors to detect vertical image-unstability and lateral image-unstability, respectively, and 17 an image-unstability decision circuit to determine the image-instability from signals output from the gyro sensors.

‘729 Patent at 4: 31- 4:35

This Is a Means-Plus-Function Claim Element

- "Image instability" by itself is a term that is not known in the art of image processing.

- Images are data that is both fixed in time and in space. There is nothing in an image that could be "unstable" or "instable".

- "[T]hespecification of the patent fails to teach any definite structure for detecting an image-instability of the electric camera. The specification states that to use gyro sensors to detect vertical image-unstability and lateral image-unstability, however, it fails to show how the unstability is detected and measured"

Declaration of Mansoorian at ¶ 47-50.

This Is a Means-Plus-Function Claim Element

- "Gyroscopes are devices that measure the angular rotational velocity. Gyroscopes can measure rotational velocity in 1, 2, or 3 directions. 3-axis gyroscopes are often implemented with a 3-axis accelerometer to provide a full 6 degree-of-freedom (DoF) motion tracking system. However, the specification did not point to any specific relationship between vertical and horizontal movement and the claimed images instability."

Declaration of Mansoorian at ¶ 55.

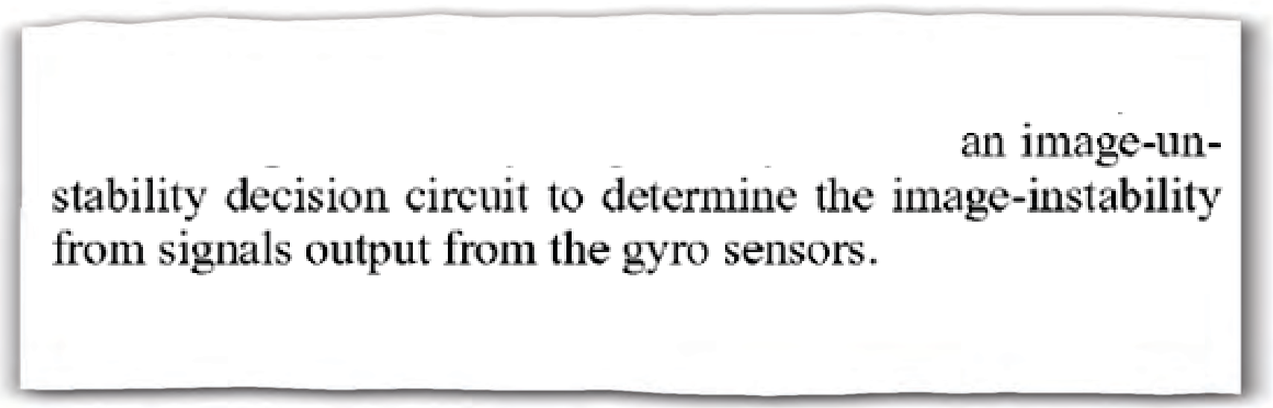
"an amount of image-instability of the camera"

Claims	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"an amount of image-instability of the camera"	Indefinite	"an amount of instability caused by vertical and/or horizontal movement of the electric camera"

This claim element is indefinite

- The specification is silent on the meaning of “image instability.”
- It is unclear whether the claim meant the total number of pixels disturbed in the image, the quality degradation of the sections of the image impacted by motion artifact, or the overall appearance of the image as a whole.
- Plaintiff’s construction acknowledges that image-instability of the camera represents instability with respect to the image data.
- Adopting Plaintiff’s construction would cause inconsistency with the claim language because it seeks to place the condition of the camera with the condition caused by the camera.

This claim element is indefinite



an image-unstability decision circuit to determine the image-instability from signals output from the gyro sensors.

'729 Patent at 4: 33- 4:35

- The specification states using a decision circuit to determine the image-instability, however, a POSITA would be left wondering how this decision circuit would convert angular velocity into a number of pixel displacement.
- Gyroscopes measure a rate of rotation (angular velocity or speed) around x, y, and Z axis and there is no relationship between the specifications "vertical image-unstability and lateral image-unstability," and the claimed image instability discussed in the specification.
- A POSITA would not be sure if this displacement is to be done on a pixel by pixel basis or on groups of pixels.

Declaration of Mansoorian at ¶ 54-55..

"to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability"

Claims	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability"	"Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-instability"	"based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted"

“to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability”

- If the court were to find “image instability” not indefinite, the defendant’s offered construction of this term is the only one consistent with the claims themselves.

(“[i]t is a "bedrock principle" of patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." Innova, 381 F.3d at 1115; see also Vitronics, 90 F.3d at 1582 ("we look to the words of the claims themselves ... to define the scope of the patented invention"

Phillips v. AWH Corporation, 415 F.3d 1303 (Fed. Cir. 2005)

“The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims”

Markman v. Westview Instruments, Inc., 52 F.3d 967, (Fed. Cir. 1995)

"to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability"

Next, the image stabilizing operation will be explained. Image-unstability information obtained by the gyro sensors **16***a*, **16***b* that detect vertical and horizontal image-unstabilities is entered into the image-unstability decision circuit **17**, which checks the received information for the amount and direction of the image-unstability and converts them into the number of pixels in vertical and horizontal directions on the light receiving surface of the image sensing device. Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-unstability. This can

'729 Patent at 7:11 – 7:21.

- In in order to correct the purported image instability the pixels must be shifted in a direction that cancels the image unstability.
- The only difference between the two proposed constructions is the amount of the shift of the effective pixel area.
- The court should adopt the defendant's construction because it is the only one consistent with the claims themselves and the specification.

"a display unit configured to display an image corresponding to the image signals formed by the signal processing unit"

Claims	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"a display unit configured to display an image corresponding to the image signals formed by the signal processing unit"	This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: "for displaying an image corresponding to the image signals formed by the signal processing unit" **Structure**: "display screen of a television system" (3:22-23) or other screen compatible with NTSC or PAL format (1:35-36; 10:19-21)	Plain and Ordinary Meaning

Dispute: Is this a means-plus-function element?

This Is a Means-Plus-Function Claim Element

- Claim 1 contains “a display unit configured to display an image corresponding to the image signals formed by the signal processing unit.”

- This term should be construed according to 35 U.S.C. § 112, ¶ 6 because the claim doesn’t contain sufficient structure to do the function of displaying the image.

Although this limitation does not include the word “means,” the limitation does not recite sufficiently definite structure for performing the claimed function, and thus should be construed as a means-plus-function limitation.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015)

By way of contrast, claim 1 of the ’493 patent includes the requisite structure for image sensing, the ’729 patent does not.

The ‘493 Patent	The ‘729 Patent
a display unit with the display screen, to display an image corresponding to the image signals;	a display unit configured to display an image corresponding to the image signals formed by the signal processing unit.

Plaintiff's reliance on *Free Stream Media Corp* is unavailing

- In contrast to the device construed in *Free Stream Media Corp* , the image sensing structure needed to perform the function of image sensing is not present in the claim.

- The term should not be governed by the plain and ordinary meaning because the specification fails to offer what that meaning might be
  - a pixel is a data construct in an image (with data representing color intensities from multiple image filter-sensor elements), not an element on a sensor as plaintiffs appear to assert.

    Declaration of Mansoorian at ¶ 37.

"A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute."

O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008)

The Appropriate Structure to perform the function of displaying an image must include a display screen of a television system or other screen compatible with NTSC or PAL formats

In a video camera to photograph moving images, it is generally assumed that the video is viewed on a display such as television monitor and thus the camera is designed to produce output signals conforming to a television system such as NTSC and PAL. Therefore, the effective number of vertically arranged pixels or picture elements on the image sensing device used in such a camera is determined to enable television signals to be generated. The NTSC system, for example, performs interlaced scanning on two fields, each of which has an effective scanning line number of about 240 lines (the number of scanning lines actually displayed on the monitor which is equal to the number of scanning lines in the vertical blanking period subtracted from the total number of scanning lines in each field).

'729 Patent at 1:30-1:44

- Throughout the specification the use of television display formats are used almost exclusively.

The Appropriate Structure to perform the function of displaying an image must include a display screen of a television system or other screen compatible with NTSC or PAL formats

Although this embodiment described the case of NTSC system, the invention can also be applied to other television systems, such as PAL standard, with different numbers of effective scanning lines.

'729 Patent at 10:19-10:22

- the only other disclosed embodiment in the specification is also a television standard.
- Clearly the patentee intended both embodiments of the invention to be limited to display screens configured to comply with television standards

U.S. Patent No. 6,408,193 ("the '193 Patent")

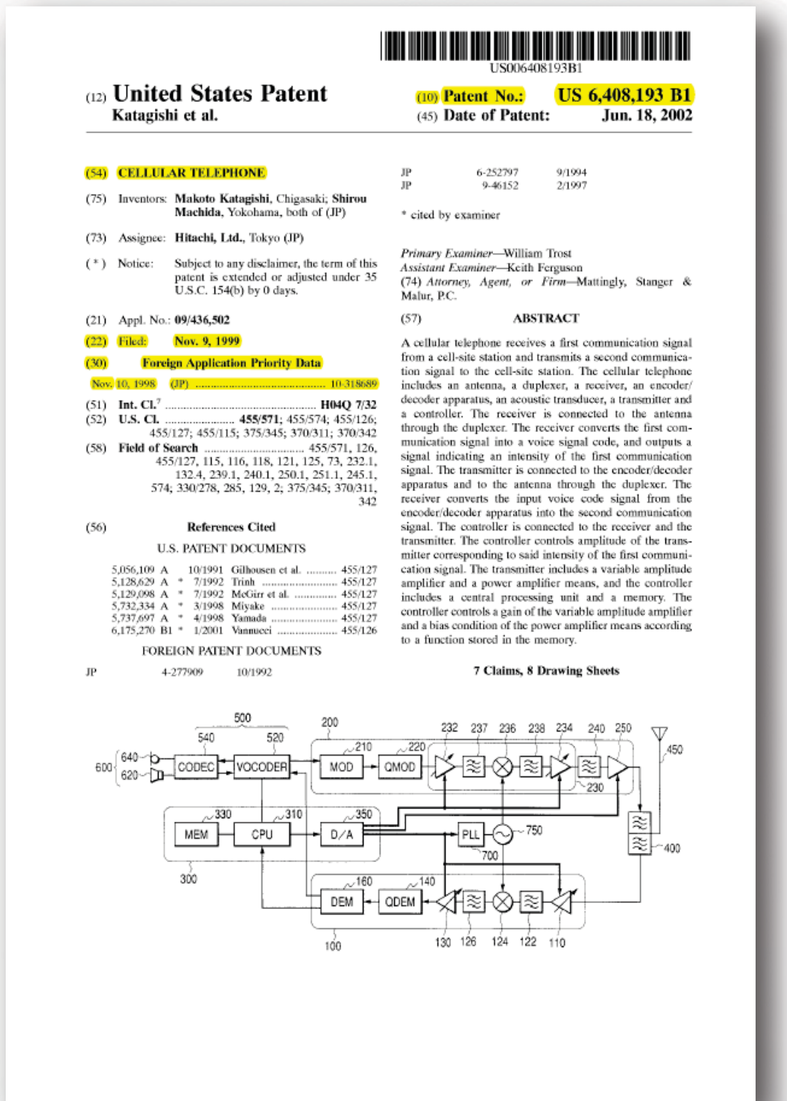
(10) **Patent No.: US 6,408,193 B1**

(54) **CELLULAR TELEPHONE**

(22) **Filed: Nov. 9, 1999**

(30) **Foreign Application Priority Data**

Nov. 10, 1998 (JP) 10-318689



US006408193B1

(12) **United States Patent**
Katagishi et al.

(10) **Patent No.: US 6,408,193 B1**
(45) **Date of Patent: Jun. 18, 2002**

(54) **CELLULAR TELEPHONE**

(75) Inventors: **Makoto Katagishi**, Chigasaki; **Shirou Machida**, Yokohama, both of (JP)

(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/436,502**

(22) Filed: **Nov. 9, 1999**

(30) **Foreign Application Priority Data**

Nov. 10, 1998 (JP) 10-318689

(51) **Int. Cl.**[7] **H04Q 7/32**

(52) **U.S. Cl.** **455/571**; 455/574; 455/126; 455/127; 455/115; 375/345; 370/311; 370/342

(58) **Field of Search** 455/571, 126, 455/127, 115, 116, 118, 121, 125, 73, 232.1, 132.4, 239.1, 240.1, 250.1, 251.1, 245.1, 574; 330/278, 285, 129, 2; 375/345, 370/311, 342

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Primary Examiner—William Trost
Assistant Examiner—Keith Ferguson
(74) *Attorney, Agent, or Firm*—Mattingly, Stanger & Malur, P.C.

(57) **ABSTRACT**

A cellular telephone receives a first communication signal from a cell-site station and transmits a second communication signal to the cell-site station. The cellular telephone includes an antenna, a duplexer, a receiver, an encoder/decoder apparatus, an acoustic transducer, a transmitter and a controller. The receiver is connected to the antenna through the duplexer. The receiver converts the first communication signal into a voice signal code, and outputs a signal indicating an intensity of the first communication signal. The transmitter is connected to the encoder/decoder apparatus and to the antenna through the duplexer. The receiver converts the input voice code signal from the encoder/decoder apparatus into the second communication signal. The controller is connected to the receiver and the transmitter. The controller controls amplitude of the transmitter corresponding to said intensity of the first communication signal. The transmitter includes a variable amplitude amplifier and a power amplifier means, and the controller includes a central processing unit and a memory. The controller controls a gain of the variable amplitude amplifier and a bias condition of the power amplifier means according to a function stored in the memory.

7 Claims, 8 Drawing Sheets

"A cellular telephone adapted to be used in a CDMA system, comprising"

Claim	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
all asserted claims	"A cellular telephone adapted to be used in a CDMA system, comprising"	Preambles are limiting	The preambles are not limiting.

Prosecution History

- CDMA was added to the claim preambles by amendment during prosecution to overcome the prior art.

- Prosecution history estoppel limits claim scope by amendments and arguments made during prosecution is a bedrock principal of claim interpretation.

However, the content of the specification and actions and arguments during prosecution must also be considered, in defining the scope of a generic term in a claim

UCB Inc. v. Yeda Research & Dev. Co., 837 F.3d 1256, 1260 (Fed. Cir.2016

("Positions taken in order to obtain allowance of an applicant's claims are pertinent to an understanding and interpretation of the claims that are granted by the PTO . . . and may work an estoppel as against a subsequent different or broader interpretation."

Advance Transformer Co. v. Levinson, 837 F.2d 1081, 1083 (Fed. Cir. 1988)

The preambles of the 193 patent's claim should be limiting.

- The preambles of the claims of the 193 patent are necessary in order for one of ordinary skill to understand how to make and use the invention.
- a skilled artisan would need to understand what type of cellular system the cellular telephone would be operating in before they could design the Radio Frequency transmission hardware claimed
- By understanding that the cellular telephone would be "adapted to be used in CDMA systems" the appropriate components (amplifiers, filters, and mixers) would be selected to allow for efficient operation in the particular frequency band and at the particular power designated for CDMA systems, in contrast to OFDMA systems such as LTE or frequency-hopping systems like GSM.

Declaration of Ding at ¶ 36-38; 40-42.

Therefore, the preambles clearly breath "life, meaning, and vitality" into the claims and should be limiting.

Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)).

The preambles of the 193 patent's claim should be limiting.

- Plaintiff agrees that the preambles were amended during prosecution to overcome the prior art.

Pl.'s Opening Br. at 51-52.

- In the January 2, 2002 Response to Office Action, the Applicant noted the significant difference between CDMA and other cellular technologies and pointed out the distinctions of CDMA networks over the cited prior art.
- In response in the February 11, 2002 Notice of Allowance, t the Examiner allowed the patent to issue reasoned that the prior art of record do not disclose or suggest a cellular telephone adapted to be used in a CDMA System.

Therefore, the preambles clearly breath "life, meaning, and vitality" into the claims and should be limiting.

Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)).

"variable amplitude amplifier"

Claims	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1, 7	"variable amplitude amplifier"	"device that includes a first-stage amplifier, two filters, an up-converter, and a second-stage amplifier"	plain and ordinary meaning

“variable amplitude amplifier”

FIG. 1

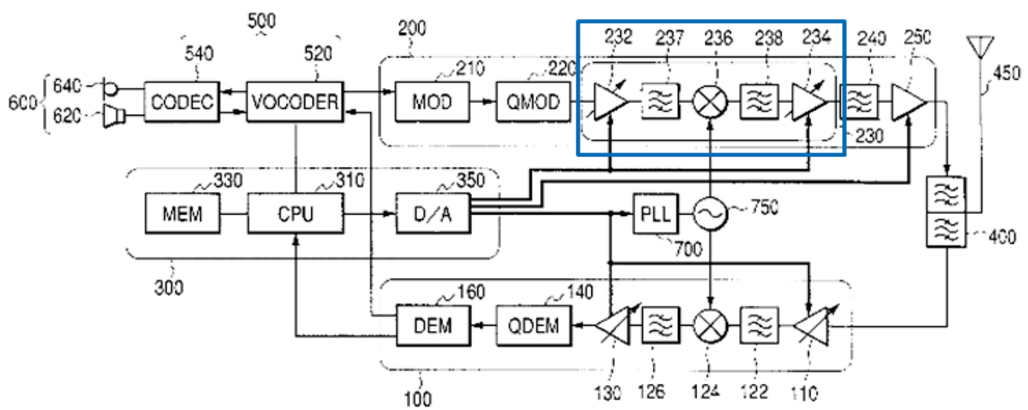
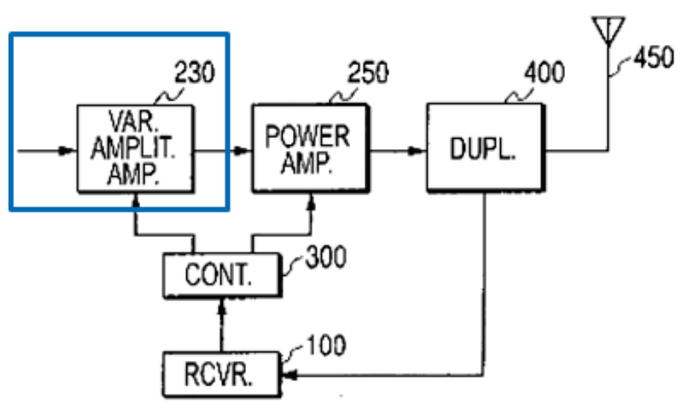


FIG. 2

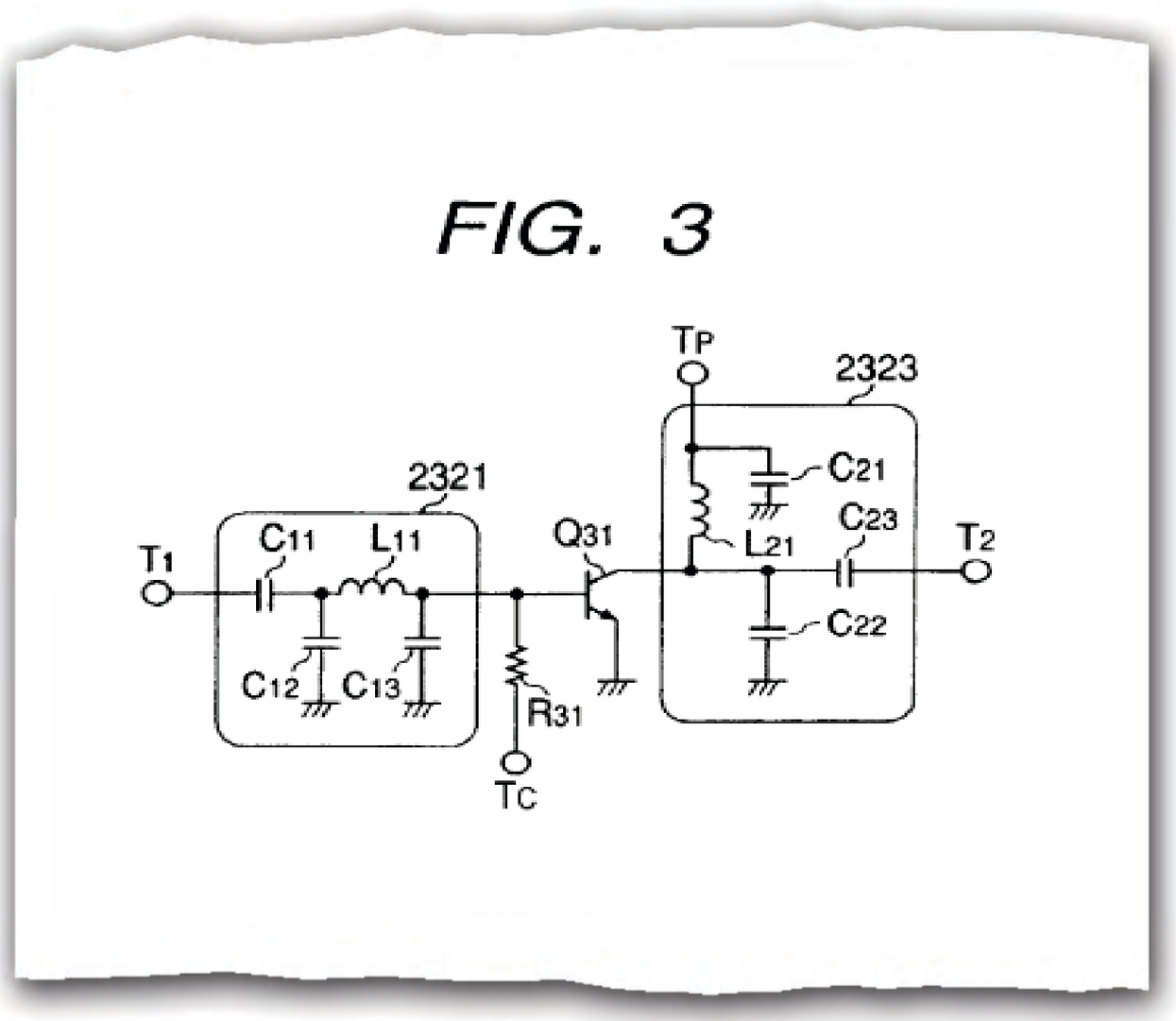


- The term should be construed as “device that includes a first-stage amplifier, two filters, an up-converter, and a second-stage amplifier because the embodiment of Figure 1 is the only embodiment that fits within the scope of the claims.

- As shown in FIG. 2, block 230 represents the variable amplitude amplifier in the first embodiment. Refer back to FIG. 1.

Declaration of Ding at ¶ 40.

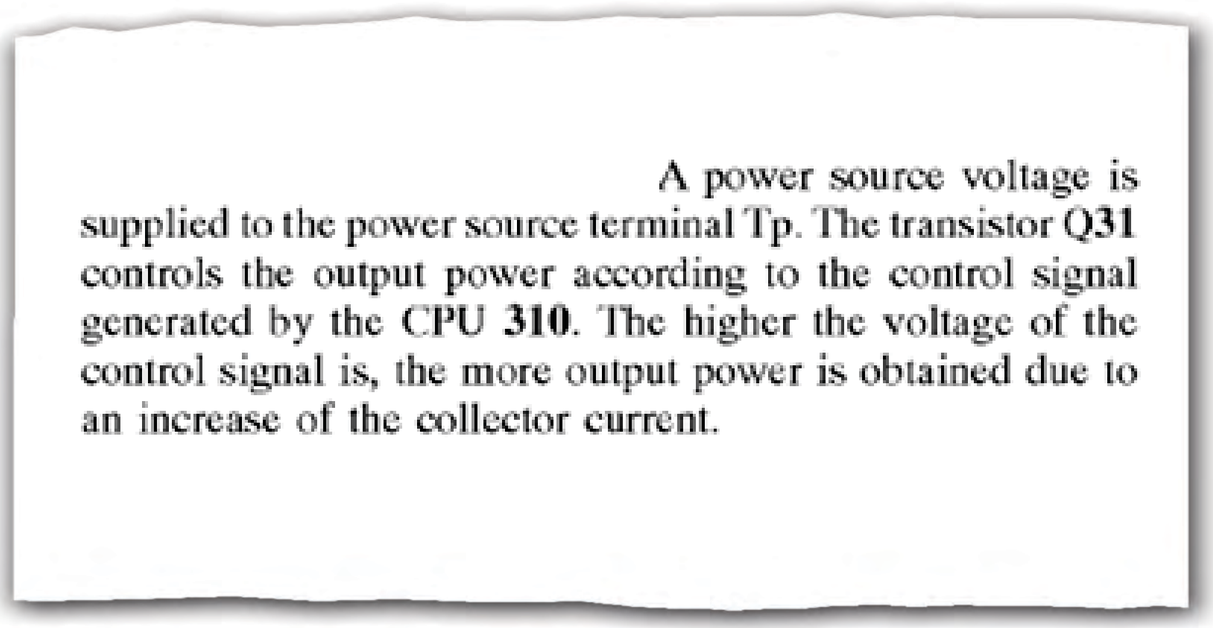
Plaintiff's Preferred Embodiment



- Plaintiff asserts that Figure 3 is the preferred embodiment.

Pl's Opening Br. at 52.

But The Specification is not enabling



A power source voltage is supplied to the power source terminal Tp. The transistor Q31 controls the output power according to the control signal generated by the CPU **310**. The higher the voltage of the control signal is, the more output power is obtained due to an increase of the collector current.

'193 Patent at 7:15 – 7:20

- The specification is not enabling on how Figure 3 works or even how it would be connected to the "control signal" required in the claims.

- The specification states that "transistor Q31 controls the output power according to the control signal generated by the CPU 310. The higher the voltage of the control signal is, the more output power is obtained due to an increase of the collector current" but it is silent on how the control signal reaches the Q31 or how it would control the output power if it did reach transistor Q31.

Declaration of Ding at ¶ 42-44

The preambles of the 193 patent's claim should be limiting.

- Amplifier gain and effective bandwidth are typically set by the ratio of impedances on the base and collector and/or emitter of the transistor.

- Not only does the specification not disclose how the control signal reaches transistor Q31 it also fails to teach how that signal would vary the gain of the circuit.

- Including this embodiment would be inappropriate because it is neither adequately described nor enabled by the specification

Declaration of Ding at ¶ 44.

"variable amplitude amplifier"

- Including the embodiment of Figure 3, may render the claims vague and indefinite since the disclosure in the specification fails to meet basic written description and enablement requirements.

"It is not necessary that each claim read on every embodiment."

Baran v. Medical Device Techs, Inc., 616 F.3d 1309, 1316 (Fed. Cir. 2010)

"[A] claim need not cover all embodiments"

Intamin Ltd. v. Magnetar Techs., Corp., 483 F.3d 1328, 1336-37 (Fed. Cir. 2007)

"A patent applicant cannot disclose and claim an invention narrowly and then, in the course of an infringement suit, argue effectively that the claims should be construed to cover that which is neither described nor enabled in the patent."

North American Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1577 (Fed. Cir. 1993)

"variable amplitude amplifier"

- The term "Variable Amplitude Amplifier" has no accepted meaning in the field and would not be known to one of ordinary skill.

Declaration of Ding at ¶ 45-48.

- In order to provide certainty and understanding, the court should construe the term according to the only enabled embodiment disclosed.

U.S. Patent No. 5,396,443 ("the '443 Patent")

[11] **Patent Number: 5,396,443**

[54] **INFORMATION PROCESSING APPARATUS INCLUDING ARRANGEMENTS FOR ACTIVATION TO AND DEACTIVATION FROM A POWER-SAVING STATE**

[22] **Filed: Oct. 7, 1993**

US005396443A

United States Patent [19]
Mese et al.

[11] **Patent Number: 5,396,443**
[45] **Date of Patent: Mar. 7, 1995**

[54] **INFORMATION PROCESSING APPARATUS INCLUDING ARRANGEMENTS FOR ACTIVATION TO AND DEACTIVATION FROM A POWER-SAVING STATE**

[75] Inventors: **Michihiro Mese**, Chigasaki; **Toshio Kamimura**, Fujisawa; **Shigeto Oeda**, Kamakura; **Hitoshi Yonenaga**, Hitachi, all of Japan

[73] Assignee: **Hitachi, Ltd.**, Tokyo, Japan

[21] Appl. No.: 133,221

[22] Filed: Oct. 7, 1993

[30] **Foreign Application Priority Data**

Oct. 7, 1992 [JP] Japan 4-268417

[51] **Int. Cl.**[6] **G06F 1/32**
[52] **U.S. Cl.** **364/707**
[58] **Field of Search** 364/707

[56] **References Cited**

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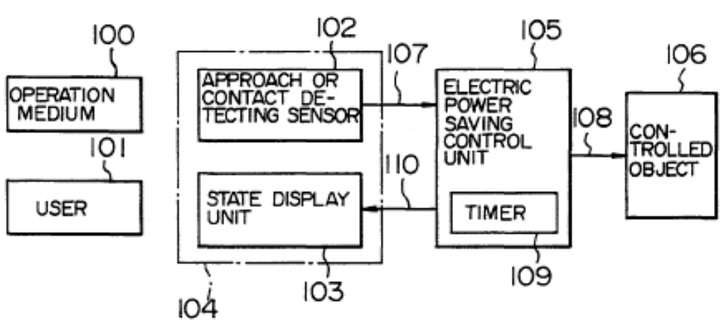
Glass, "Power Management" *Byte* Sep. 1991 pp. 329–335.

Primary Examiner—David H. Malzahn
Attorney, Agent, or Firm—Antonelli, Terry, Stout & Kraus

[57] **ABSTRACT**

An information processing apparatus can save an electric power when it is not in use and can be made active immediately after an operation medium such as a pen and a finger or the user approaches or comes in contact with the apparatus, the arrangement being such that a housing portion of the apparatus includes therein a sensor for detecting the approach or contact of a user operation medium or user and a state display unit for informing the user that the apparatus is in the active state or in the standby state, a power saving control unit controls a controlled object concerning a power consumption in response to the approach, contact or separation of the operation medium or user, and a timer included in the electric power saving control unit determines whether or not the operation medium or user is separate from the apparatus.

29 Claims, 10 Drawing Sheets



"a detecting means for detecting whether a user associated medium at least approaches at least part of a housing of said apparatus"

Claim	Disputed Term	Defendant's Proposed Construction	Plaintiff's Proposed Construction
1	"a detecting means for detecting whether a user associated medium at least approaches at least part of a housing of said apparatus"	This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: "for detecting whether a user associated medium at least approaches at least a part of a housing of said apparatus" **Structure**: Electromagnetic induction systems, electrostatic coupling system, and Optical system, listed in Table 1; "microphone" (18:8); "temperature sensor" (19:12); "cameras" (Figs. 14 and 15)	**Function**: "detecting whether a user-associated medium at least approaches at least part of a housing of said apparatus." **Structure**: A sensor, a touch-sensitive surface, or a tablet configured to detect proximity and/or contact using one or more of an electromagnetic induction system, a capacitance system, a capacitive coupling system, a pressure-sensitive resistance system, a transmission pen type ultrasonic system, a surface acoustic wave type ultrasonic system, an optical system, an image sensor, a camera, a microphone, or a temperature sensor, as well as equivalents thereof

Dispute: Should Plaintiff be allowed to re-expand the scope of corresponding structure for "detecting means"?

The original language of claim 1 plainly captured approach and contact detection types.

TABLE 1

CHARACTERISTICS OF TYPICAL TABLETS

Kinds of tablets	transparency	detection characteristic: approach	detection characteristic: contact	detection characteristic: press	operation medium: part of body	operation medium: pen-shaped member	operation medium: exclusive pen	re-marks
Electro-magnetic induction system	opaque	O	O	O	X	X	necessary	pen-point switch to detect contact
Capacitance system	trans-parent	X	O	X	O	X	possible	pen is conductive
Electrostatic coupling system	trans-parent	O	O	X	O	X	possible	pen is conductive
Pressure-sensitive resistance system	trans-parent	X	O	X	O	O	not necessary	
Transmission pen type ultra-sonic system	trans-parent	X	O	O	X	X	necessary	ultra-sonic transmission from pen
Surface acoustic wave type ultra-sonic system	trans-parent	X	O	O	O	X	possible	pen is ultra-sonic absorption property (e.g., rubber)
Optical system	trans-parent	O	O	X	O	O	not necessary	

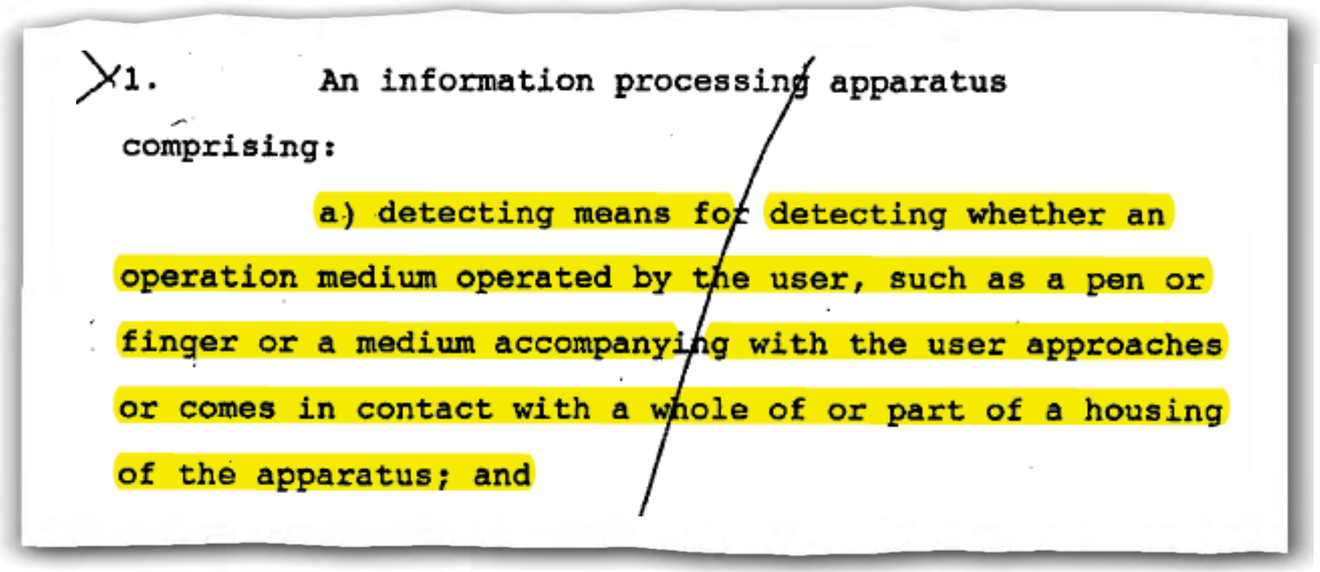
Note: “O” means the corresponding characteristic is present and an “X” means it is not present.

- The specification describes “approach detection type” (e.g., proximity) and “contact detection type” detection systems. ’443 patent, 9:13-15; Table 1

- The original language of Claim 1 captured both types of detection means: “detecting means for detecting whether an operation medium operated by the user . . . ***approaches or comes in contact with*** . . . the apparatus.” October 7, 1993 Claims at 49.

- The plain meaning of the original claim language “approaches or comes in contact with” could be satisfied by either approach type or contact type.

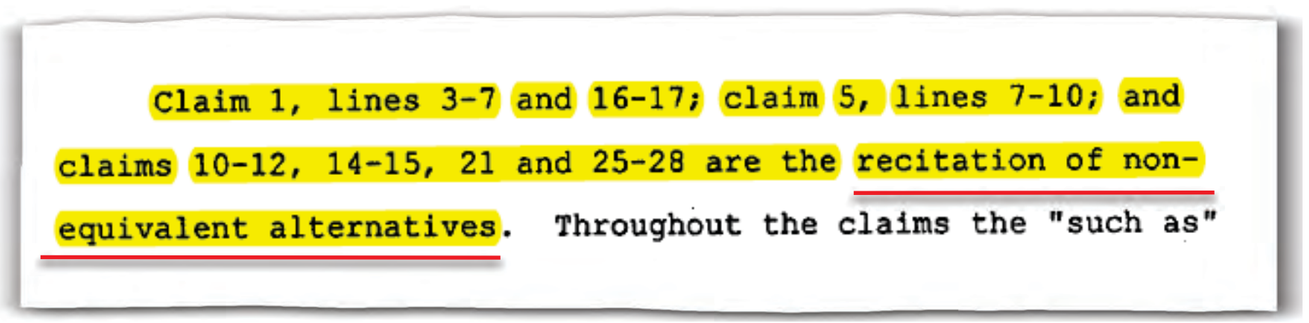
The USPTO rejected claim 1 as originally presented for claiming non-equivalent alternatives, among other things.



1. An information processing apparatus comprising:

a) detecting means for detecting whether an operation medium operated by the user, such as a pen or finger or a medium accompanying with the user approaches or comes in contact with a whole of or part of a housing of the apparatus; and

October 7, 1993 Claims at 49.



Claim 1, lines 3-7 and 16-17; claim 5, lines 7-10; and claims 10-12, 14-15, 21 and 25-28 are the recitation of non-equivalent alternatives. Throughout the claims the "such as"

May 6, 1994 Office Action at 2.

- The USPTO rejected the original claim language because approach type and contact type detecting means are non-equivalent.
- Contrary to Maxell's assertion, use of "such as" "throughout the claims" was a distinct ground for rejection and does not appear in several of the claim excerpts rejected as "recitation of non-equivalent alternatives."

The patentee narrowed the scope of claim 1 to overcome the rejection for claiming non-equivalent alternatives.

Please amend the claims as follows:

1. (Amended) An information processing apparatus comprising:

a housing:

[a)] a detecting means for detecting whether [an operation medium operation by the user, such as a pen or finger or a medium accompanying with the user] a user-associated medium at least approaches [or comes in contact with a whole of or] at least a part of a housing of [the] said apparatus; and

examination in the application.

Claims 1-29 have been rejected under 35 USC §112, second paragraph, as being indefinite based upon several Office Action listed concerns. Claims 1-29 have been carefully reviewed and amended where appropriate in order to address such Office Action listed concerns, and to otherwise improve a clarity of such claims. Accordingly, reconsideration and withdrawal of the §112, second paragraph, rejection of claims 1-29 are respectfully requested.

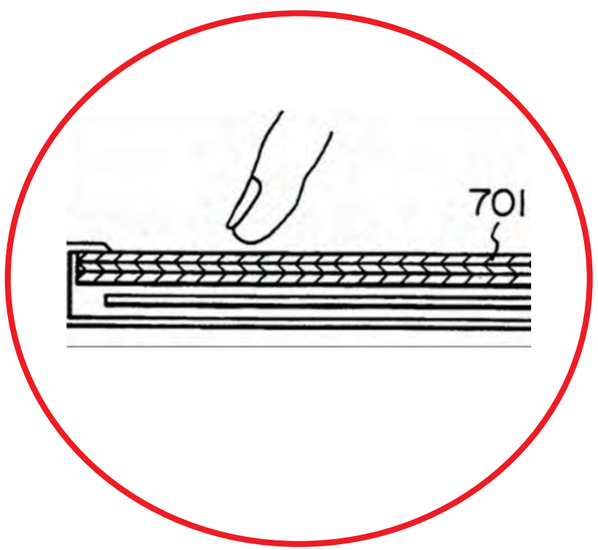
As none of claims 1-29 have been rejected on a basis of prior art, and because the

August 8, 1994 Amendment at 2, 7.

- The patentee narrowed the claim by deleting “or comes into to contact with” from the claim language.
- The amended language requires detection when a user-associated medium “at least approaches.”

The plain meaning of "at least approaches" requires structure that, at a minimum, detects approach.

Approach Detection Required



- The amended language requires approach type (*i.e.*, proximity) detection: "a detecting means for detecting whether a user associated medium at least approaches."
- A contact only detection type would not detect approach, and would not detect when a user associated medium "at least approaches" the device.

U.S. Patent No. 6,748,317 ("the '317 Patent")

(10) **Patent No.: US 6,748,317 B2**

(54) **PORTABLE TERMINAL WITH THE FUNCTION OF WALKING NAVIGATION**

(22) Filed: **May 5, 2003**

US006748317B2

(12) **United States Patent**
Maruyama et al.

(10) **Patent No.: US 6,748,317 B2**
(45) **Date of Patent: *Jun. 8, 2004**

(54) **PORTABLE TERMINAL WITH THE FUNCTION OF WALKING NAVIGATION**

(75) Inventors: **Kishiko Maruyama**, Kodaira (JP); **Shigeru Shimada**, Kodaira (JP); **Toshiichirou Sasaki**, Iwaki (JP)

(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **10/428,755**

(22) Filed: **May 5, 2003**

(65) **Prior Publication Data**

US 2003/0195695 A1 Oct. 16, 2003

Related U.S. Application Data

(63) Continuation of application No. 10/173,423, filed on Jun. 18, 2002, now Pat. No. 6,580,999, which is a continuation of application No. 09/613,634, filed on Jul. 11, 2000, now Pat. No. 6,430,498.

(30) **Foreign Application Priority Data**

Jul. 12, 1999 (JP) 11-197010

(51) **Int. Cl.**[7] **G01C 21/00**

(52) **U.S. Cl.** **701/200**; 701/201; 342/357.01; 342/357.08

(58) **Field of Search** 701/200, 201, 701/211, 212, 213; 340/988, 995; 342/357.01, 357.06, 357.08

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6,580,999	B2 *	6/2003	Maruyama et al.	701/200

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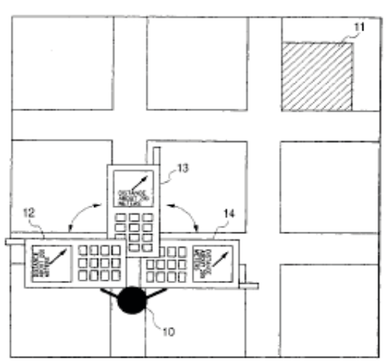
Primary Examiner—Yonel Beaulieu
(74) *Attorney, Agent, or Firm*—Mattingly, Stanger & Malur, P.C.

(57) **ABSTRACT**

A portable terminal has a function of walking navigation. The direction of a destination is displayed by an indicating arrow that always points in the direction of the destination. In the navigation processing, the user enters data to select a menu and/or set retrieving conditions on the setup screen. At first, the user gets the location information of the portable terminal, represented by a latitude/longitude or coordinates and an altitude, for example. Then, the user gets the direction information of the portable terminal, which is the direction of the tip of the portable terminal as determined by a compass, a gyro, or a clinometer. The location information and the direction information are set as terminal information for the retrieving conditions. The system controls retrieving of the database and retrieves the information corresponding to the selected menu, such as route guidance.

20 Claims, 10 Drawing Sheets



“walking navigation”

Claims	Disputed Term	ZTE’s Proposed Construction	Maxell’s Proposed Construction
1, 10, 15, 16, 17, 20	“walking navigation”	“display of information to assist a user in walking, not driving, in a system that is not usable in an object car that is running on a road”	“information to navigate a user who is walking”

"walking navigation"

The '317 Patent exclusively describes its system as one for walking navigation.

The '317 Patent does not suggest modifying or adjusting a car system to be a walking navigation system.

BACKGROUND OF THE INVENTION

The present invention relates to a portable terminal including a portable telephone and a Personal Handyphone System (PHS) (including a telephone provided only with character data communication functions) and a personal data assistance (PDA) terminal provided with portable telephone or PHS data communication functions. More particularly, the present invention relates to a portable terminal provided with the function of walking navigation, which can supply location-related information to the walking user.

See '317 Patent at 1:10-18.

See also Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention.")

“walking navigation”

The ‘317 Patent disparages car-based navigation systems:

‘317 Patent at 1:35-38

There are also many systems under development to be used for supplying the location information around the user’s present place through the GPS (Global Positioning System). For example, a car navigation system to be mounted on a car is too large for a walker to carry around. In addition, because the navigation system premises that the system is used while the object car is running on a road, it cannot be used as a walker’s navigation system as is. On the other hand, in the case of such a location information system as a PDA with GPS and a handy GPS intended to walkers, it is possible to show the user’s present place on a map stored beforehand in its local memory or down-loaded from the above services.

The Patentee has therefore disclaimed driving navigation.

- *See Tronzo v. Bimet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998) (“There is nothing in the '589 specification to suggest that shapes other than conical are necessarily a part of the disclosure. Indeed, as discussed above, the specification clearly suggests the contrary by asserting advantages of the conical shape over prior art shapes.”)

"said device connected to said server outputting said location information . . ."

Claims	Disputed Term	ZTE's Proposed Construction	Maxell's Proposed Construction
6	"said device connected to said server outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server"	Indefinite This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server **Structure**: insufficient corresponding structure is disclosed	Plain and ordinary meaning

“said device connected to said server outputting said location information . . .”

There appears to be no dispute that this is a means plus function term.

B. “said device connected to …”

The ’317 Patent does not need to disclose an algorithm for the functions of “outputting” and “receiving” information. When a recited function can be performed by a general purpose computer, the specification need not disclose an algorithm for performing the claimed function. *Katz*, 639 F.3d at 1316. Functions like “processing,” “receiving,” and “storing” “can be achieved

Pl.’s Reply Br. at 14.

"said device connected to said server outputting said location information . . ."

"Device" is a nonce word that does not connote structure. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015).

Plaintiff argues that a CPU may perform the functions, but the specification fails to disclose even a general purpose CPU *in connection with this term:*

> 48. One of ordinary skill in the art would not understand the term "a device," standing alone, to provide sufficiently definite structure, because much like a generic term, "a device" is merely a construct that is often used by person skill in the art that is equivalent to the word "means." The term "a device" is generic that could be anything from a computer device to a display device.

(Declaration of Scott Andrews at para. 48.)

“said device connected to said server outputting said location information . . .”

The function includes software steps, but the specification fails to disclose an algorithm to perform them:

49. Furthermore, the claim term includes software steps, such as outputting location and direction information and receiving retrieved information and the specification does not specify any corresponding algorithm or structure, nor does it reference any industry standards that a practitioner might apply to implement these steps. Figures 2, 6, and 7 all provide various descriptions of internal algorithms for performing some claimed functions, but none of these describe the steps or logical operations required to output location and direction information, or to what entity this information is outputted, and they also do not describe the steps associated with retrieving information based on this outputted information, or where it is retrieved from.

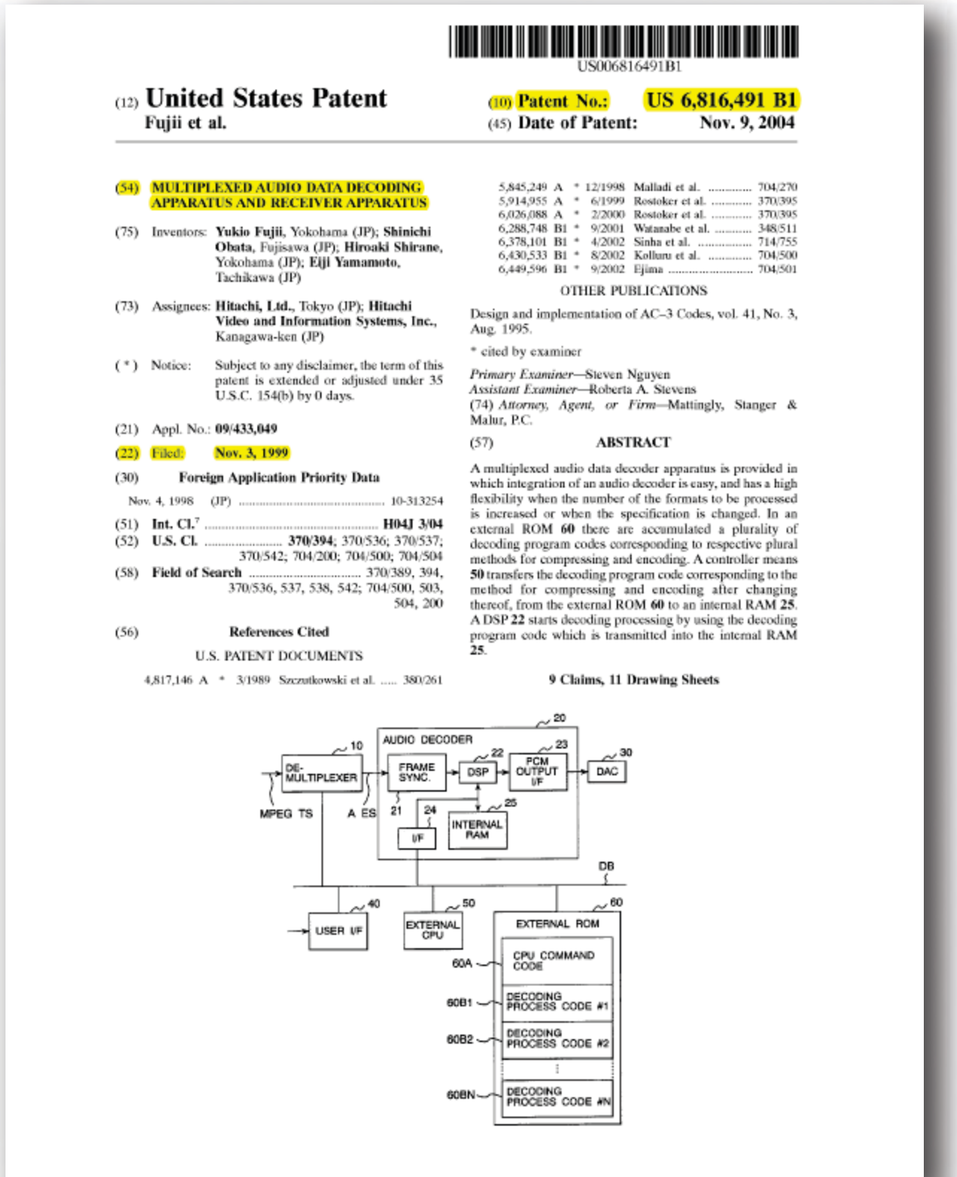
Declaration of Scott Andrews at para. 49.

U.S. Patent No. 6,816,491 ("the '491 Patent")

(10) **Patent No.: US 6,816,491 B1**

(54) **MULTIPLEXED AUDIO DATA DECODING APPARATUS AND RECEIVER APPARATUS**

(22) **Filed: Nov. 3, 1999**



US006816491B1

(12) **United States Patent**
Fujii et al.

(10) **Patent No.: US 6,816,491 B1**
(45) **Date of Patent: Nov. 9, 2004**

(54) **MULTIPLEXED AUDIO DATA DECODING APPARATUS AND RECEIVER APPARATUS**

(75) Inventors: **Yukio Fujii**, Yokohama (JP); **Shinichi Obata**, Fujisawa (JP); **Hiroaki Shirane**, Yokohama (JP); **Eiji Yamamoto**, Tachikawa (JP)

(73) Assignees: **Hitachi, Ltd.**, Tokyo (JP); **Hitachi Video and Information Systems, Inc.**, Kanagawa-ken (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/433,049**

(22) Filed: **Nov. 3, 1999**

(30) **Foreign Application Priority Data**

Nov. 4, 1998 (JP) 10-313254

(51) **Int. Cl.**[7] **H04J 3/04**

(52) **U.S. Cl.** **370/394**; 370/536; 370/537; 370/542; 704/200; 704/500; 704/504

(58) **Field of Search** 370/389, 394, 370/536, 537, 538, 542; 704/500, 503, 504, 200

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* cited by examiner

Primary Examiner—Steven Nguyen
Assistant Examiner—Roberta A. Stevens
(74) *Attorney, Agent, or Firm*—Mattingly, Stanger & Malur, P.C.

(57) **ABSTRACT**

A multiplexed audio data decoder apparatus is provided in which integration of an audio decoder is easy, and has a high flexibility when the number of the formats to be processed is increased or when the specification is changed. In an external ROM **60** there are accumulated a plurality of decoding program codes corresponding to respective plural methods for compressing and encoding. A controller means **50** transfers the decoding program code corresponding to the method for compressing and encoding after changing thereof, from the external ROM **60** to an internal RAM **25**. A DSP **22** starts decoding processing by using the decoding program code which is transmitted into the internal RAM **25**.

9 Claims, 11 Drawing Sheets

"controller means for detecting change in said method of compression and encoding . . ."

Claims	Disputed Term	ZTE's Proposed Construction	Maxell's Proposed Construction
1, 2	"controller means for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory"	**Function:** Claim 1: "for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory" Claim 2: "for transferring said plural decoding program codes from said read only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read only memory to said first memory" **Structure:** Claims 1 &2: an external CPU (FIG 1) connected via a bus between a read only memory and the first memory, running the algorithm of Figs. 4 and 5. (6:30–7:54)	**Function:** detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory **Structure:** At least one processor – such as a CPU–programmed to execute processing in accordance with the algorithm set forth in flowcharts of Fig. 4 (including steps S3, S5-S9), Fig. 9 (including steps S3-S14) and corresponding citations in the specification at 5:60-64, 6:30-7:54, 9:13-18, 9:28-44, and FIGS. 1, 4-6, and 9, as well as equivalents thereof

This is a means-plus-function claim element

- The parties agree that “controller means” is a means-plus-function claim element
- With respect to both claims 1 and 2, the parties agree that a CPU is the corresponding structure
- With respect to claim 1, the parties agree on the function

Dispute: with respect to claims 1 and 2, whether the CPU is “external” and “connected via a bus between a read only memory and the first memory”?

The Claim Language Supports ZTE's Construction

- Maxell's proposed function for claim 2 does not take into account the language differences between claim 1 and claim 2.
- ZTE's proposed function for claim 2 corresponds to the actual claim language.

Claim 1	Claim 2
"for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory"	"for transferring said plural decoding program codes from said read only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read only memory to said first memory"

The Patent Specification Supports ZTE's Construction

Maxell argues that the corresponding structure for claims 1 and 2 is shown in Figs. 1, 4-6, and 9, however, each of those embodiments uses an "external" CPU.

FIGS. 1 and 4 use an "external" CPU

FIG. 1

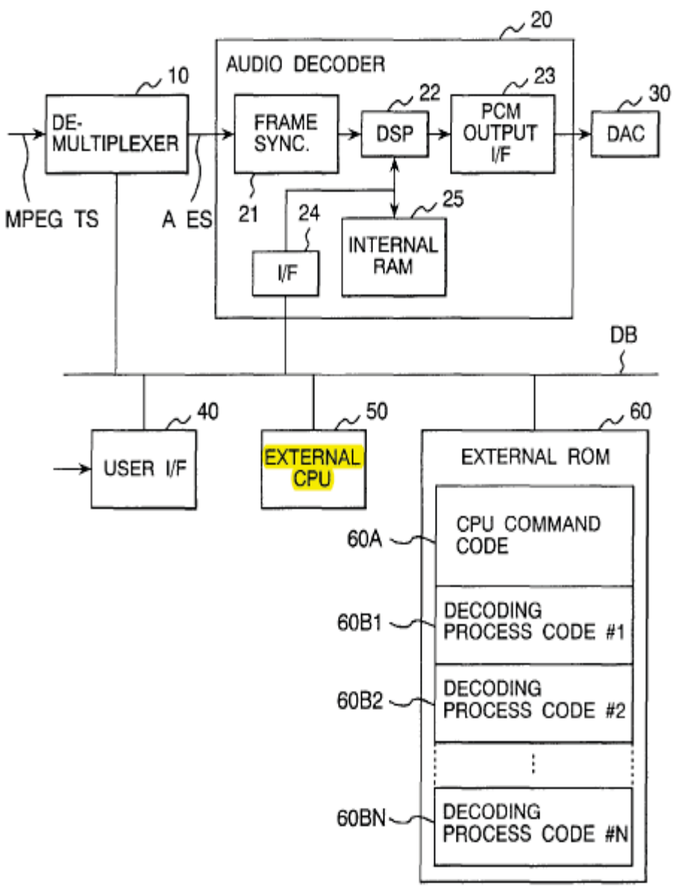
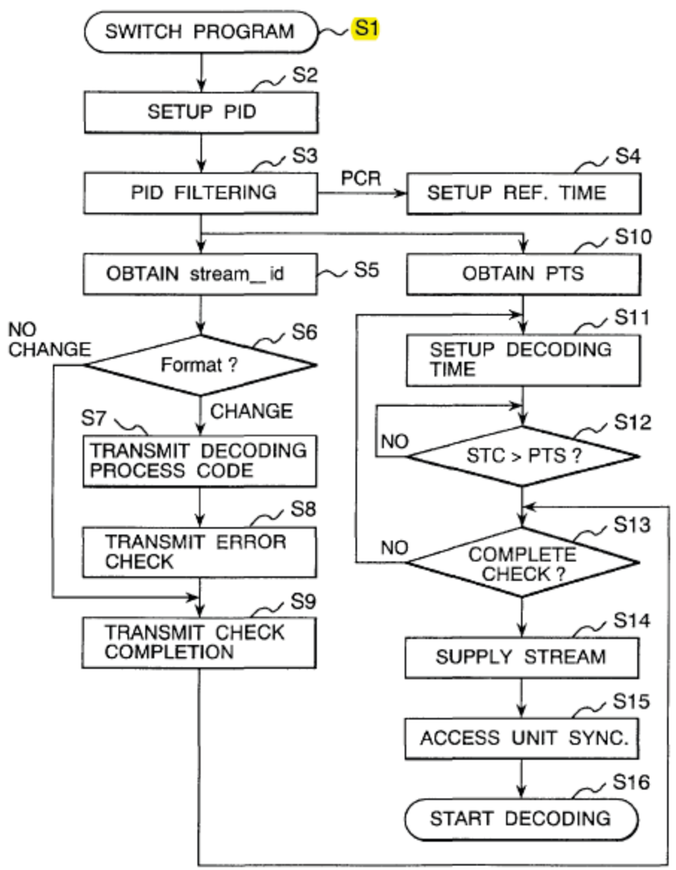


FIG. 4



The FIG. **4** shows the program switching or changing process focusing mainly on the algorithm thereof, and the FIG. **5** shows it focusing mainly on the transfers of signals between the constructive blocks thereof. Further, in the FIGS. **4** and **5**, the same reference numerals indicate the steps in the process, being same to each other.

In a step S1, the program switching or changing process is started. For example, when the user conducts switching or changing of the program by using a remote controller or the like, a program switch command is transferred to the external CPU **50** through the user I/F **40** shown in the FIG. **1**, and the program switching process is started by the external CPU **50**. However, in the explanation below, it is assumed that the user selects the program #k.

'491 Patent at 6:30-43

FIGS. 5 and 6 use an "external" CPU

FIG. 5

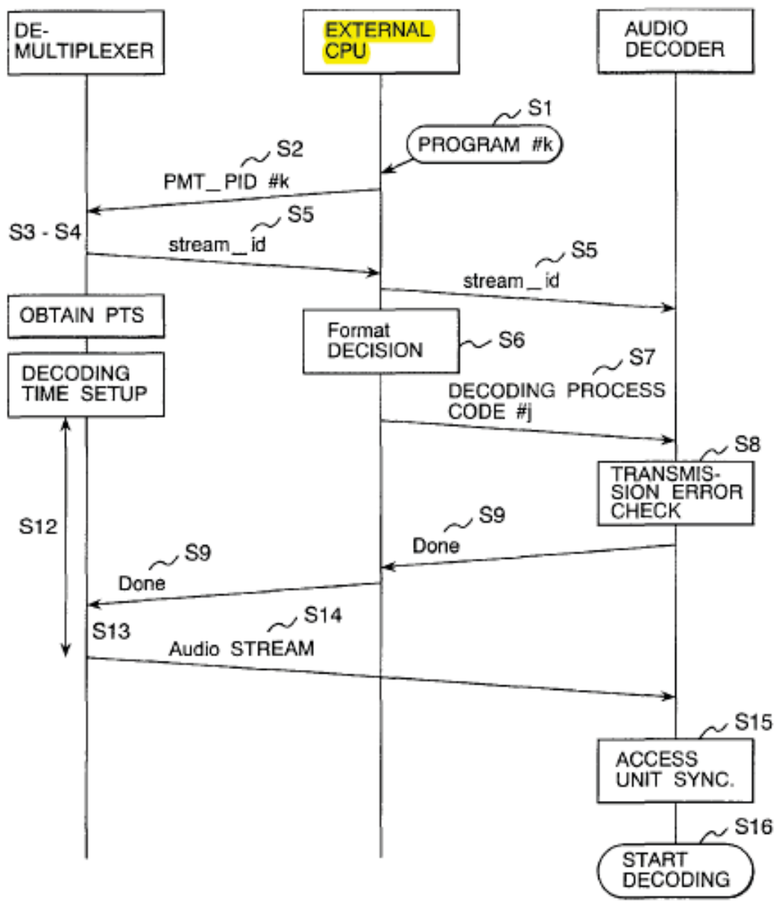


FIG. 6

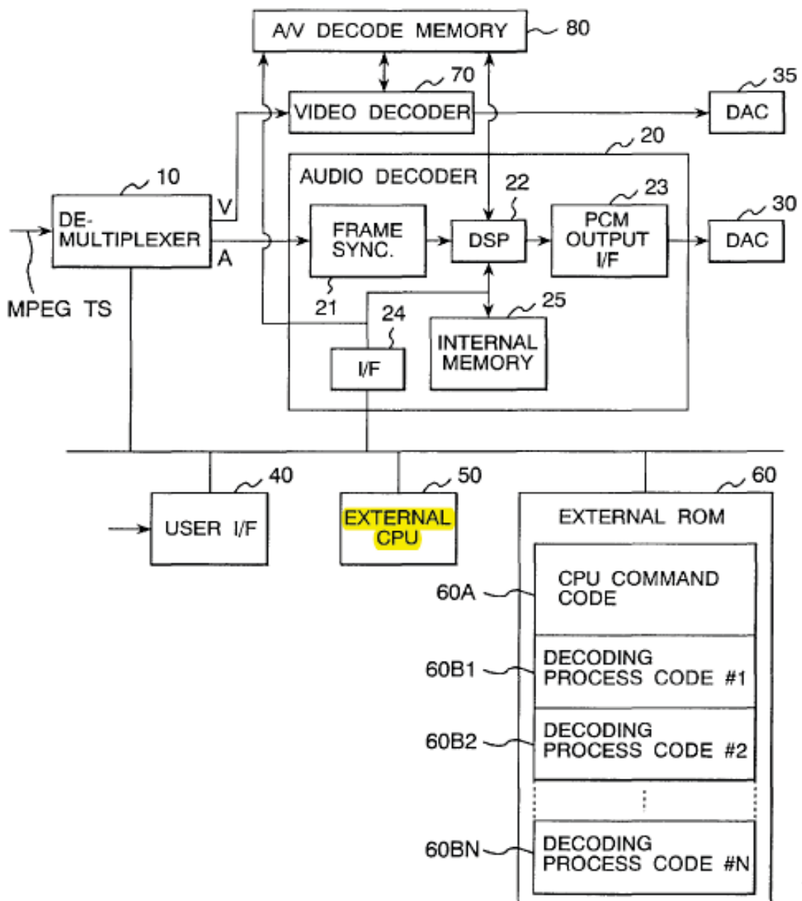
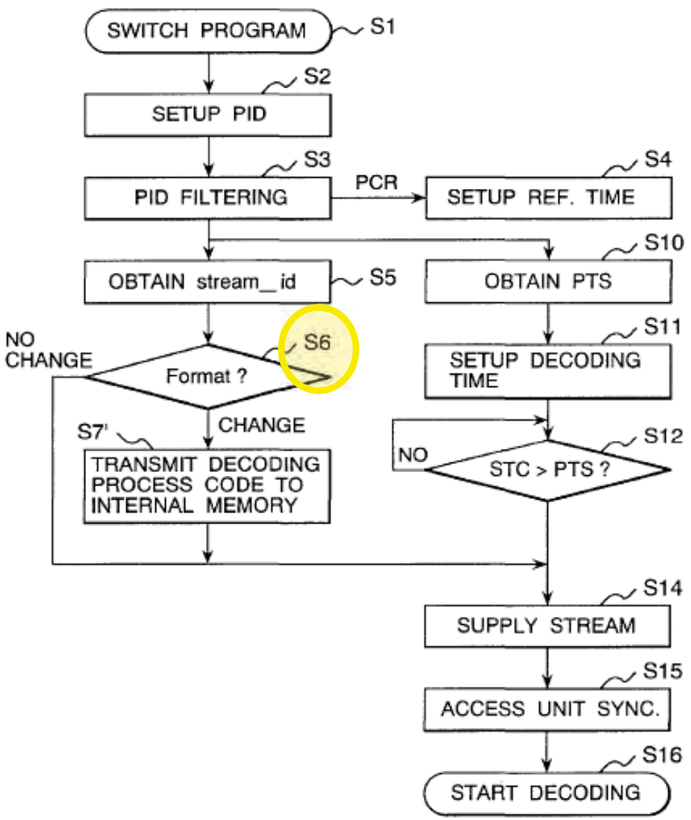


FIG. 9 uses an "external" CPU

FIG. 9



The FIG. **9** shows the program switching process according to the present embodiment, mainly focusing on the algorithm thereof. However, the same reference numerals indicate the same process steps shown in the FIGS. **4** and **5**.

In the program switching process according to the present embodiment, the step **S7** is replaced by a step **S7'** in the program switching process shown in the flow chart of the FIG. **4**, and the steps **S8**, **S9** and **S13** are deleted there that shown in the FIG. **4**, therefore explanation will be given on those differences.

In the decision in the step **S6**, when the external CPU **50** decides that the audio coding format after switch-over of the program is changed from the present format, the DSP **22** transfers the decoding process code after the switch-over from the decoding process code areas **80***d***1**, . . . **80***d*N in the A/V decode memory **80** to the internal memory **25**.

'491 Patent at 6:28-43

The Patent Specification Supports ZTE's Construction

No embodiment of the patent uses an internal CPU for the controller function.

Dr. Mayer-Patel's declaration expressly states:

> The CPU used in this patent is external to the audio data decoding structure and thus is an external CPU. All of the embodiments described in the specification refer to having the external CPU to control the multiplex audio data decoder. Whenever CPU is used in the patent, it is either called an external CPU or exterior CPU. The patent nowhere describes or mentions an internal CPU, or describes a CPU as internal to the audio decoder.

Declaration of Mayer-Patel at ¶ 39.

The Patent Specification Supports ZTE's Construction

- Maxell states that ZTE's construction "sits in uneasy tension with the natural language of the claim itself." Dkt. 95 at 58.
- Maxell suggests that because the "multiplexed audio data decoder apparatus" includes the controller means it would be nonsensical for it to be external.
- Maxell offers no case law support or specification support for its position

The Patent Specification Supports ZTE's Construction

Instead the specification expressly states

The multiplexed audio data decoder apparatus according to the present embodiment comprises a demultiplexer **10**, an audio decoder **20**, a digital/analog converter (DAC) **30**, a user interface (I/F) **40**, an external CPU **50**, and an external ROM **60**. The demultiplexer **10**, the audio decoder **20**, the user interface (I/F) **40**, the external CPU **50** and the external ROM **60** are connected through a data bus DB to one another, thereby enabling to input and output commands and data to one another.

'491 Patent at 4:35-43.

Maxell's construction would exclude the preferred embodiment.

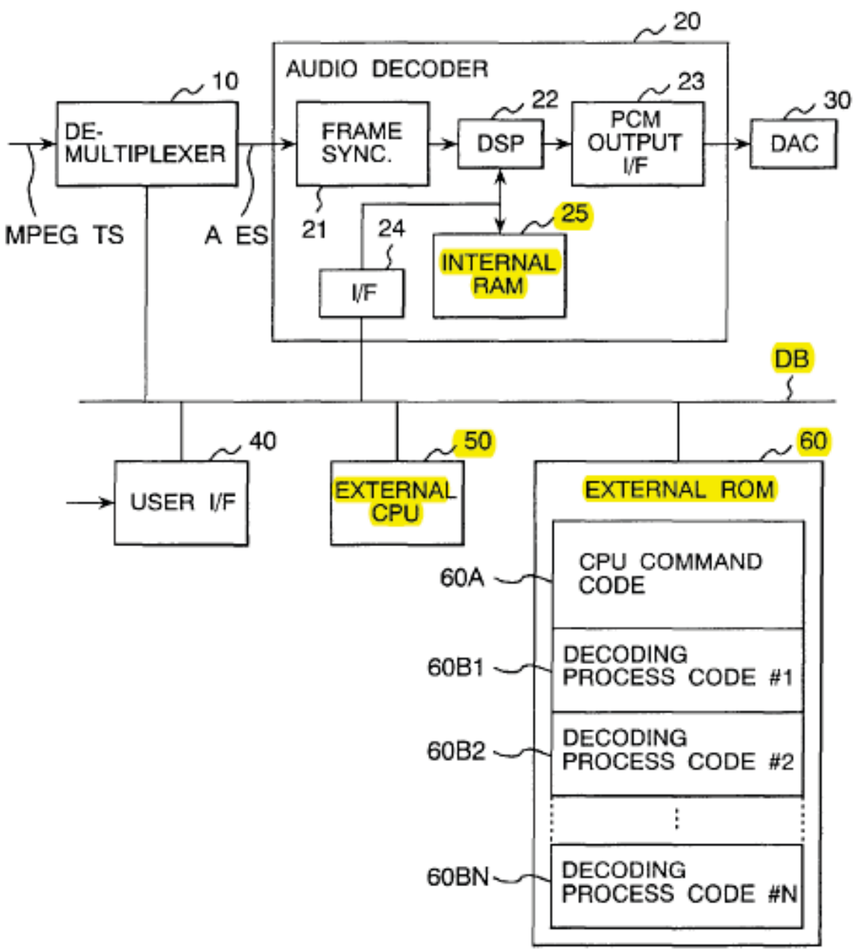
A construction that excludes the preferred embodiment "is rarely, if ever, correct. . . ."

Vitrionics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996)

The Patent Specification Supports ZTE's Construction

- Maxell's construction ignores the fact that the CPU is "connected via a bus between a read only memory [ROM] and the first memory." Yet, this is the only corresponding structure disclosed in the patent performing the "transferring portion" of the "controller means" function.

FIG. 1



“a demultiplexer for inputting one audio data sequence . . .”

Claims	Disputed Term	ZTE’s Proposed Construction	Maxell’s Proposed Construction
7	“a demultiplexer for inputting one audio data sequence which is compressed and encoded, being selected from a plurality of audio data sequences which are multiplexed”	Indefinite Alternative if not indefinite: a demultiplexer that outputs one data sequence, which is compressed and encoded, to the input of a frame sync. The demultiplexer itself does this inputting and also extracts the method of compression and encoding.	Not a means-plus-function term; plain and ordinary meaning

Claim 7 is indefinite

- Claim 7 requires that the demultiplexer input "one audio data sequence."
- This phrase is indefinite because one of ordinary skill in the art reading the specification would not be able to identify which device or structure the data is to be input into.

To meet the definiteness requirement of 35 U.S.C. § 112, ¶ 2, the patent must give "clear notice of what is claimed."

Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2128-29 (2014).

The patent specification demonstrates inconsistency

- The only possible language in the claim that could correspond to this input is the last clause which recites “a digital signal processor [DSP] for decoding said one audio data sequence . . . .”
- However, this is inconsistent with the specification because in all embodiments the output of the demultiplexer is inputted into a frame sync, not the DSP.

The patent specification demonstrates inconsistency

FIG. 1

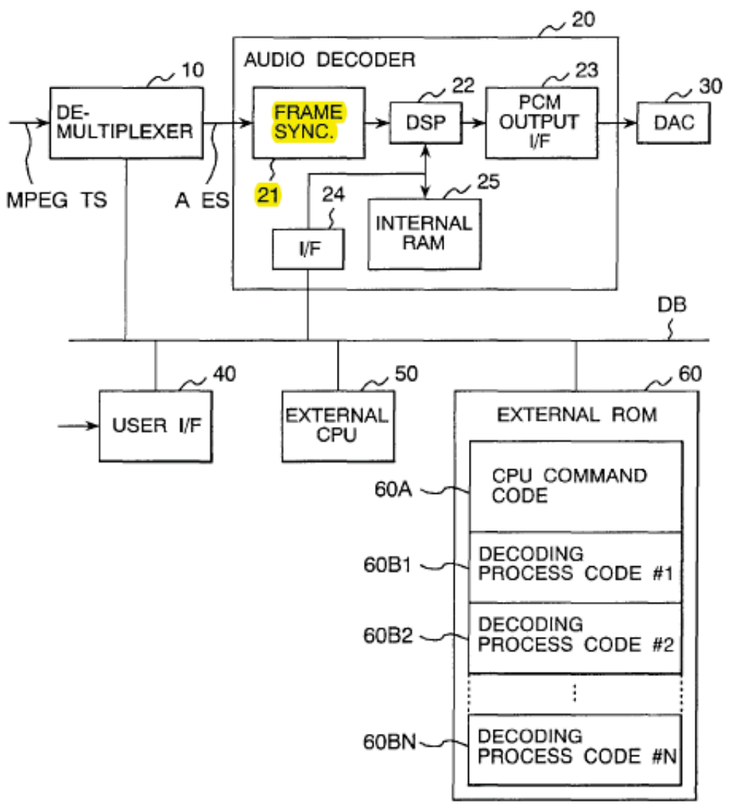
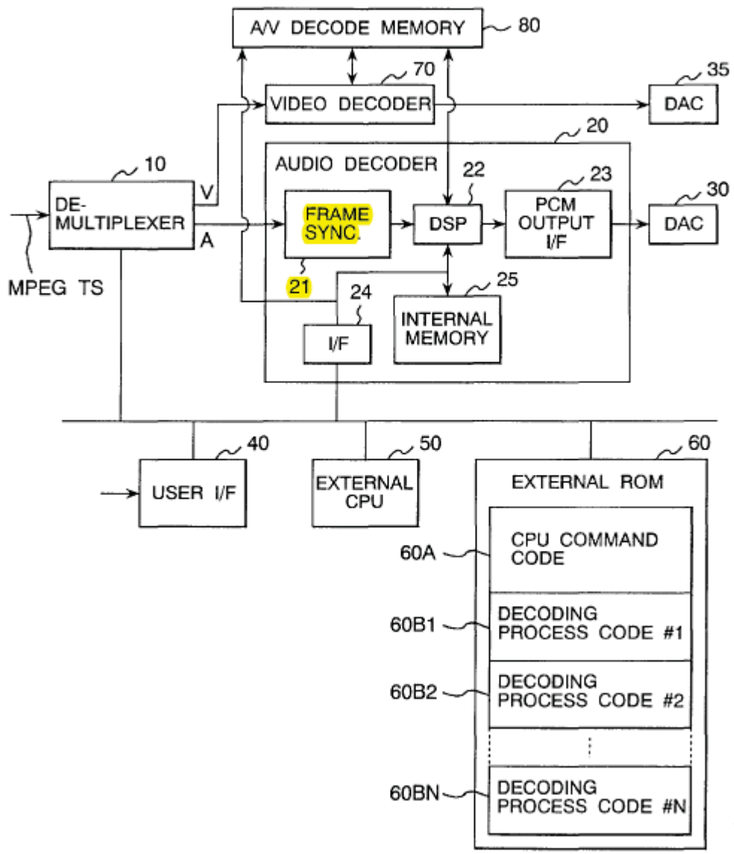


FIG. 6



The patent specification demonstrates inconsistency

FIG. 11

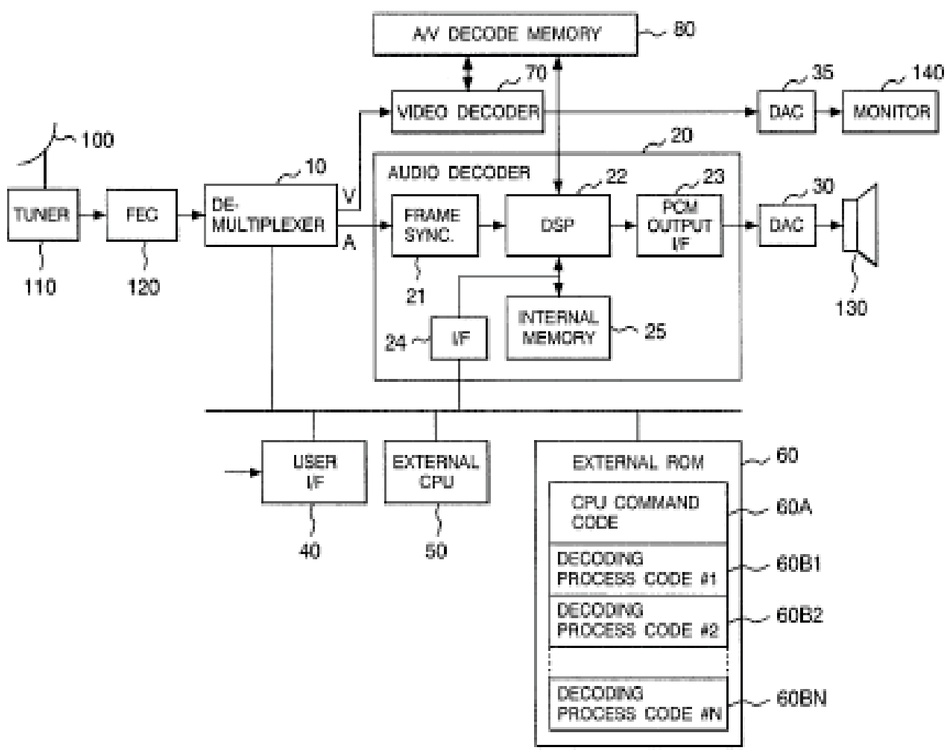
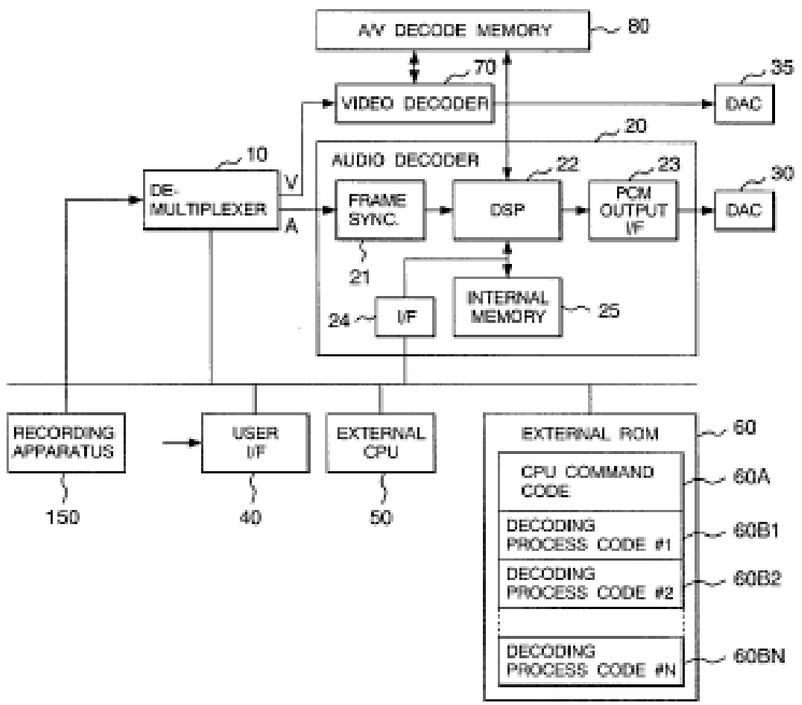
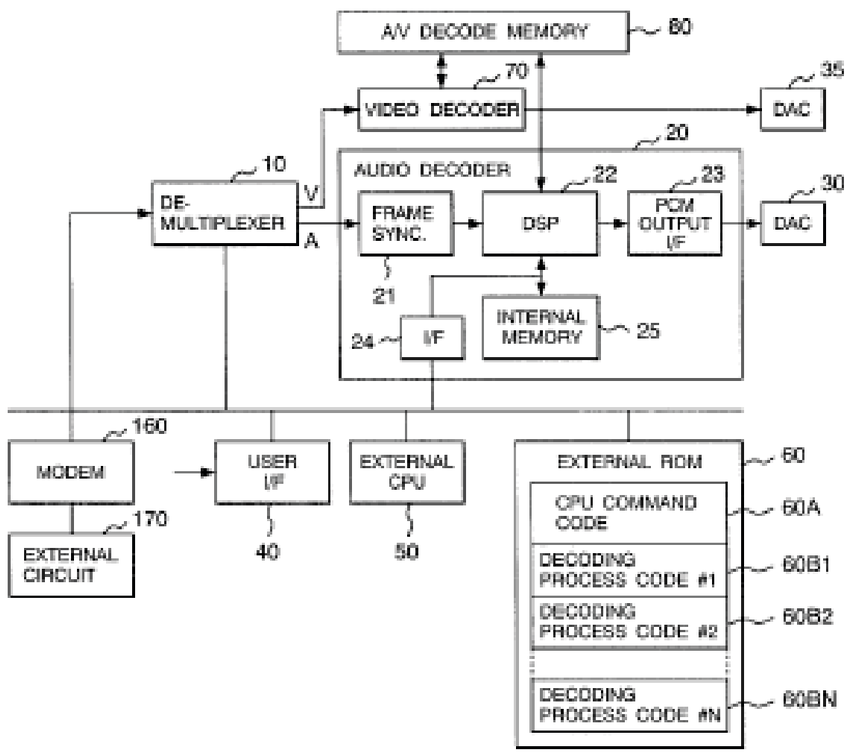


FIG. 12



The patent specification demonstrates inconsistency

FIG. 13



The patent specification demonstrates inconsistency

Dr. Mayer-Patel's declaration expressly states:

> The term "demultiplexer" given its plain and ordinary meaning only suggests separating a substream of information from a previously multiplexed combination of several streams, but does not in and of itself indicate how to this is accomplished or for what purpose. As expressed in the claim, these elements required to properly understand the operation of the demultiplexer within the scope of the invention are missing. There is no recitation in the claim of what the demultiplexer is inputted into. The claim is thus incomplete and inoperable.

Declaration of Mayer-Patel at ¶ 46.

> "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."

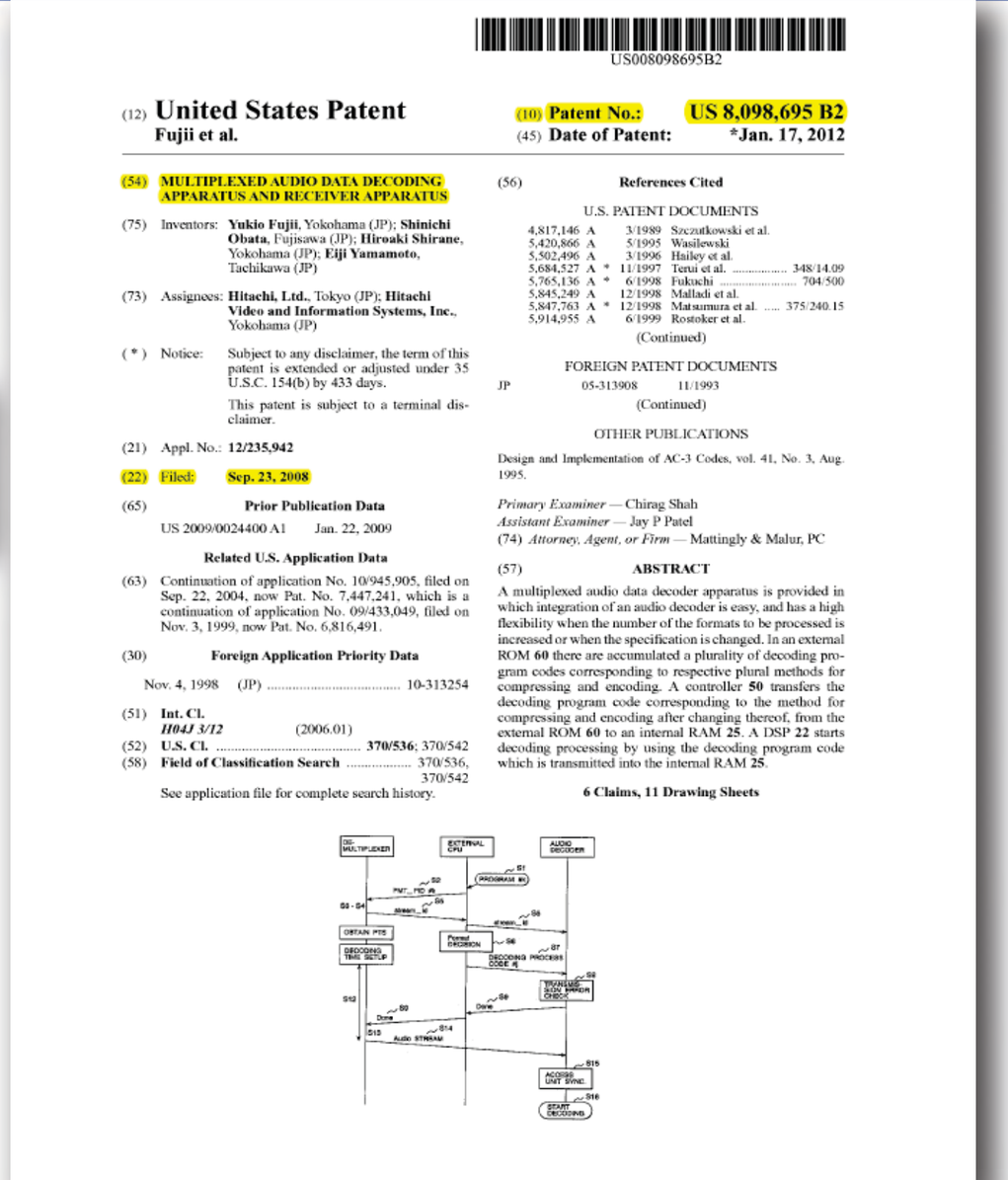
Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2124 (2014).

U.S. Patent No. 8,098,695 ("the '695 Patent")

(10) **Patent No.: US 8,098,695 B2**

(54) **MULTIPLEXED AUDIO DATA DECODING APPARATUS AND RECEIVER APPARATUS**

(22) Filed: **Sep. 23, 2008**



US008098695B2

(12) **United States Patent**
Fujii et al.

(10) **Patent No.: US 8,098,695 B2**
(45) **Date of Patent: *Jan. 17, 2012**

(54) **MULTIPLEXED AUDIO DATA DECODING APPARATUS AND RECEIVER APPARATUS**

(75) Inventors: **Yukio Fujii**, Yokohama (JP); **Shinichi Obata**, Fujisawa (JP); **Hiroaki Shirane**, Yokohama (JP); **Eiji Yamamoto**, Tachikawa (JP)

(73) Assignees: **Hitachi, Ltd.**, Tokyo (JP); **Hitachi Video and Information Systems, Inc.**, Yokohama (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 433 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/235,942**

(22) Filed: **Sep. 23, 2008**

(65) **Prior Publication Data**

US 2009/0024400 A1 Jan. 22, 2009

Related U.S. Application Data

(63) Continuation of application No. 10/945,905, filed on Sep. 22, 2004, now Pat. No. 7,447,241, which is a continuation of application No. 09/433,049, filed on Nov. 3, 1999, now Pat. No. 6,816,491.

(30) **Foreign Application Priority Data**

Nov. 4, 1998 (JP) 10-313254

(51) **Int. Cl.**
H04J 3/12 (2006.01)

(52) **U.S. Cl.** **370/536**; 370/542

(58) **Field of Classification Search** 370/536, 370/542

See application file for complete search history.

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Primary Examiner — Chirag Shah
Assistant Examiner — Jay P Patel
(74) *Attorney, Agent, or Firm* — Mattingly & Malur, PC

(57) **ABSTRACT**

A multiplexed audio data decoder apparatus is provided in which integration of an audio decoder is easy, and has a high flexibility when the number of the formats to be processed is increased or when the specification is changed. In an external ROM **60** there are accumulated a plurality of decoding program codes corresponding to respective plural methods for compressing and encoding. A controller **50** transfers the decoding program code corresponding to the method for compressing and encoding after changing thereof, from the external ROM **60** to an internal RAM **25**. A DSP **22** starts decoding processing by using the decoding program code which is transmitted into the internal RAM **25**.

6 Claims, 11 Drawing Sheets

"a controller for receiving a method of compression and encoding from said demultiplexer . . ."

Claims	Disputed Term	ZTE's Proposed Construction	Maxell's Proposed Construction
	"a controller for receiving a method of compression and encoding from said demultiplexer, for detecting whether said method of compression and encoding changes to another method of compression and encoding or not, and if said method of compression and encoding changes, for downloading the decoding program code corresponding to said another method of compression and encoding, to said memory from outside of said memory"	This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6. **Function**: "for receiving a method of compression and encoding from said demultiplexer, for detecting whether said method of compression and encoding changes to another method of compression and encoding or not, and if said method of compression and encoding changes changes, for downloading the decoding program code corresponding to said another method of compression and encoding to said memory from outside said memory" **Structure**: an external CPU (FIG 1) connected via a bus between a read only memory and the memory, running the algorithm of Figs. 4 and 5. (6:30–7:54)	Not a means-plus function term; plain and ordinary meaning.

This is a means-plus-function claim element

- The originally filed claims recited a “controller means.”
- The term “controller” does not connote sufficiently definite structure to perform the function.
- Maxell reached its conclusion based on cases that are inapplicable here, as all but one of those cases, were decided prior to the Federal Circuit’s *en banc* decision in *Williamson*, which removed the heavy presumption against Section 112(6) application where “means” is not recited.

Although this limitation does not include the word “means,” the limitation does not recite sufficiently definite structure for performing the claimed function, and thus should be construed as a means-plus-function limitation.

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015).

This is a mean-plus-function element

- Relying on a dictionary as extrinsic evidence, Maxell incorrectly contends that "controller" is a known specific device in the field. Dkt. 95 at 63-64.

- Controller: "[a] device that coordinates and controls the operation of one or more input/output devices, such as workstations, and synchronizes the operation of such devices with the operation of the system as a whole."

- But that is not the controller of the claim

Dr. Mayer-Patel's declaration expressly states:

> In this case, the controller must function to (1) detect whether the method of compression and encoding has changed, (2) download particular code from outside the memory to the memory.

Declaration of Mayer-Patel at ¶ 51.

Legal Standard

General principles of claim construction

Claims terms should generally be given their plain and ordinary meaning.

The specification "is always highly relevant" and often "dispositive" because "it is the single best guide to the meaning of a disputed term."

Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005).

The "[o]rdinary meaning is not … determined in a vacuum"; "a word describing patented technology takes its definition from the context in which it was used by the inventor."

Eon Corp. IP Holdings v. Silver Spring Networks, 815 F.3d 1314, 1320 (Fed. Cir. 2016).

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Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

Means-plus-function limitations

Claim terms may be expressed as a means plus a function.

See 35 U.S.C. § 112 (f).

Means-plus-function limitations

Although the word “means” creates a presumption, any apparatus claim term is subject to § 112 (f) if it “do[es] not describe a sufficiently definite structure.”

Construing means terms is a two-step process: first the Court must “identify the claimed function,” then it “must determine what structure, if any, disclosed in the specification corresponds to the claimed function.”

If a means term has multiple functions, each one must have corresponding structure.

To be “corresponding structure” the “intrinsic evidence” must “clearly link[] or associate[] that structure to the function recited in the claim.” *Id.* at 1352. A person of ordinary skill must be “[]able to recognize the structure in the specification and associate it with the corresponding function in the claim.”

Otherwise, “the claim is indefinite.”

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1351-52 (Fed. Cir. 2015)

Means-plus-function limitations

when the function “must be implemented in a special purpose computer … the structure disclosed in the specification [must] be more than simply a general purpose computer or microprocessor”: there must be “an algorithm for performing the claimed functions,” such as in a “mathematical formula, in prose, or as a flow chart.”

The mere fact that a person of ordinary skill “could program a computer to perform the recited functions cannot create structure where none otherwise is disclosed.”

Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1351-53 (Fed. Cir. 2015)

Indefiniteness

A claim is indefinite if, when "viewed in light of the specification and prosecution history," it fails to "inform those skilled in the art about the scope of the invention with reasonable certainty."

A court's ability to ascribe "some meaning" to a term during claim construction does not save the term. Indeed, the Supreme Court has expressly disfavored such "post hoc" efforts to "ascribe some meaning to a patent's claims."

Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2129-30 (2014).

Instead, a claim is indefinite where "the claim language 'might mean several different things' and 'no informed and confident choice is available among the contending definitions.'"

Even if a definition is supported by the specification, "the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into a meaningfully precise claim scope."

Interval Licensing LLC v. AOL, Inc., 766 F.3d 1364, 1371 (Fed. Cir. 2014).

Indefiniteness Under 35 U.S.C. § 112, ¶ 2

A patent involving measurements must disclose a single known approach or, where multiple possible approaches exist, establish that one skilled in the art would know which approach to select.

Dow Chem. Co. v. Nova Chems. Corp. (Canada), 803 F.3d 620, 630 (Fed. Cir. 2015).